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CONSTRUCTION

TURKMEN SSR: NEED FOR IMPROVED CONSTRUCTION MANAGEMENT

Ashkhabad TURKMENSKAYA ISKRA in Russian 21 Jul 82 p 1

[Article: "Improve construction management"]

[Text] About 4,000 structures are being erected in the republic. Tremendous amounts of capital have been remitted to carry out this work. Today there is no problem more important than the use of the people's money in a wise manner, economically, with maximum yield. This, however, requires construction to be performed quickly and well, and facilities to be put into operation and brought to full operating capacity in the shortest time possible.

In Turkmenistan, of late, the following facilities have gone into operation: the Ashkhabad grinding plant, the Geok-Tepino sewing factory, the Tashauz combined feed plant, the slow coking plant in the Krasnovodsk petroleum processingplant. A large program of housing and recreational construction is being accomplished. This year the rates of construction and assembly work grew significantly and labor productivity rose.

To a large extent, this is promoted by the currently operating management machinery. For the second year, contracting organizations are operating under new conditions of planning and financing. The plans of the collectives are tighter than before; they are linked with opportunities and material and technical resources, and with planning and estimate documentation. Their work is not assess by the amount of money assimilated, but by the commercial construction product, i.e., in terms of the end results. This makes the ministries, agencies, unions and trusts focus their attention on the performance of start-up pro-rams, and on improvement of the management of capital jobs.

At the 26th CPSU Congress, emphasis was placed on the extreme need for concentrating funds and resources on primary facilities, limiting the number of capacities being erected at the same time, and realization of specialization and concentration. Where these requirements were mastered in time, they were wisely prepared to introduce new evaluative indicators and pretty good indicators were achieved. As a result of the use of a complex of organizational and technical meausres there was a sharp drop in incomplete production in the Tashauz trust, the Tashauzvodstroy union, Glavkarakumstroy and other contracting groups.

Happily, efficiency increased in the work of economic, planning, and financing services of the ministries and agencies and their branches.

But it is too early to speak of total prosperity. In the first six months of this year, the situation remained serious at several major construction sites in the republic. The plans and socialist obligations for six months were ruined at chemistry and petrochemistry, mineral fertilizer, housing, health care, national education, and communal management facilities. This resulted in the entire sector falling behind.

As has been noted in the resolution of the TuSSR Supreme Soviet on the status of capital construction in the republic and problems involved in its improvment in view of requirements made by the 26th CPSU Congress, we are still building slowly, poorly and expensively. The primary reason behind this are deficiencies in planning, management and organization of the construction process.

Construction work is not being steered to a new course of management in very many places. Anywhere that management leaders and workers of planning agencies still hold firm to the old way, they are mistakenly looking backwards at the amount of funds assimilated, and are frittering away monetary and material and technical resources.

This in particular can explain why the titles of contracting organizations include facilities which have no planning and estimate documentation, financing and plats. The collective of the Turkmengradostroy union and others were faced with such problems this year.

Some ministries and agency clients, failing to complete several construction projects, are rushing to begin others, and in this way they are planting the seeds for long construction periods and unjustifiably increase the amount of incomplete production. Especially alarming is the state of affairs in communical and rural construction, where dozens of facilities are being put up with gross violations of the scheduled time-periods.

A powerful barrier to dissipation of resources, inefficient utilization of capital investments must be erected by the supervisory agencies, institutions of USSR Stroybank, and local party and Soviet agencies. Wastefulness must be dealt with severely, personnel must be thoroughly trained to work under new conditions, and wise, far-sighted management of the sector must be carried on.

The problems of planning quality are becoming primary in importance now. The plan must be intensive but realistic. Otherwise, it dooms labor groups to low end results, to continuous corrections. This menace has also hung over the subdivisions of TuSSR Minstroy.

A clear and balanced plan is the law for all builders, including assembly fitters, equipment suppliers and planners. But this single fundamental conditions of the management mechinism, unfortunately, is not always observed in practice. The organizations of the Turkmen industrial and administrative agency of USSR Minmontazhspetsstroy deserves to be rebuked: they have been violating contractual obligations at many facilities in the republic.

Planning discipline is being violated by enterprises of the ministries of construction materials, construction, TuSSR Gossnab and other industries. But the economic penalties are rarely and only mildly imposed on the violators.

An immediate duty of ministries and agencies, oblast commissions for supervision of construction projects is to achieve close interaction between cooperating organizations, to ensure the smooth operation of the industrial conveyor belt. Fuller utilization of the opportunity for a new management mechanism must be made in an important work area such as improvement of structural plans for management of capital construction.

The multiple interlinking in the management system is breaking down bit by bit. Leaders and managers are unwilling to form powerful construction and industrial unions. To the contrary, despite today's needs, tiny, poorly supplied subdivisions are being started in Turkmenistan, not just in contracting organizations, but even in non-contracting ministries and agencies. Parallelism and duplication of effort are exacerbating the problem of dissipation of resources and are impeding the concentration of primary funds.

These facts must be stopped. Party, trade-union agencies, executive committees of local councils of people's deputies must bring into play a new style of construction management, keep their eyes on the flow of the new management machinery, and raise the exigency on the leaders of production.

The second year of the five-year plan is at its zenith. The chief purpose is to fulfill its quotas, and put all designated facilities into operation.

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CSO: 1821/179

CAPITAL CONSTRUCTION STATISTICAL REPORTING DETAILED

Moscow VESTNIK STATISTIKI in Russian No 6, Jun 82 (signed to press 19 and 26 May 82) pp 3-12

[Article by A. Belyakov under the heading "Effectiveness of Social Production": "Tasks of Capital Construction Statistics in the 11th Five-Year Plan"]

[Text] Successful resolution of the economic and social tasks set by the 26th CPSU Congress for the 1980's is determined in considerable measure by how effectively the enormous sums being allocated for capital construction will be used.

The "Basic Directions of USSR Economic and Social Development in 1981-1985 and Up To 1990" anticipate fundamental improvement in capital construction. Primary attention is being paid to the prompt start-up of fixed assets and production capacities, to reducing the time involved in installing enterprises, to lowering construction cost and to bringing the amounts of unfinished construction down to the normative level.

Thanks to steps taken in recent years to improve construction planning and organization, definite results have been achieved in increasing capital investment effectiveness and concentrating resources. In the 10th Five-Year Plan, an average of 93 kopecks of fixed assets was put into operation per ruble of capital investment spent each year; the figure in 1981 was 97 kopecks. In a number of branches, the time involved in putting up enterprises and facilities was reduced, the amounts of new construction were reduced, the degree of project readiness rose somewhat, and the amounts of unfinished construction relative to annual capital investment volume were reduced.

However, resources continue to be scattered among numerous construction projects in a number of branches and regions of the country, especially those with estimated costs of under three million rubles whose titles lists have been approved by the ministries and departments themselves, without the concurrence of planning agencies. This leads to construction delays. As a consequence of the inadequate tempos of construction and installation work and the failure to supply industrial enterprises and supply organizations at construction sites with equipment, materials and components promptly, a significant portion of the production projects are being put into operation later than scheduled in the state plan. Calculations show that bringing the enterprise and facility construction schedules which evolved during the 10th Five-Year Plan down to the normative would enable us to obtain several billion rubles more national income.

The party and government currently attach top-priority importance to increasing capital construction effectiveness. Comrade L. I. Brezhnev cited capital construction as the decisive sector of the 11th Five-Year Plan in his speech at the November (1981) CPSU Central Committee Plenum. The five-year plan anticipates significant improvement in capital investment effectiveness. The amount of fixed assets being put into operation is increasing at outstripping rates (22 percent more than in the 10th Five-Year Plan), permitting a reduction in unfinished construction to the normative, that is, to 72 percent of the annual state capital investment volume, by the end of the five-year plan and, at the same time, ensuring significant growth in the availability of capital to labor (by 34 percent in industry and by 45 percent in agriculture).

The increase in capital investment effectiveness is resulting largely from improvement in the branch structure of capital investments. A distinguishing feature in the 11th Five-Year Plan is the top-priority use of funds in those branches and types of production which ensure improvement in national economic proportions and accelerated technical progress in the national economy.

State statistical agencies must regularly prepare information describing the utilization of capital investments being allocated in the five-year plans and the meeting of assignments on putting fixed assets and production capacities into operation not only by ministry and department, but also by individual branch of the national economy and industry. In this regard, consideration should be given to the fact that there were substantial deviations in branch proportions from those anticipated by the 10th Five-Year Plan in the course of capital construction. This could not but have an effect on the development of certain branches of industry, and especially raw-materials branches. It is therefore very important to reveal current violations of five-year plan assignments caused by the introduction of partial corrections to construction-project titles lists. The greater capital construction assignment stability anticipated in the new five-year plan will facilitate the more proportional and better-planned development of the national economy.

The retooling and renovation of existing enterprises must receive preferential development in the 11th Five-Year Plan. Capital investment for these purposes will increase 21 percent, and their proportion of production construction will be increased to 32.5 percent. This will increase capital investment effectiveness. Reporting data show that the time involved in installing production capacities in a number of branches of industry and agriculture is 1.2- to 1.5-fold less for renovation than for new construction, and specific capital investment per unit of capacities put into operation decreases by 20-30 percent. However, the time inovlved in renovation stretches out over many years, specific expenditures are higher than in new construction, and the proportion of construction-installation work in the overall capital investment volume is extremely high for renovation, exceeding the proportion in new construction; the work structure testifies to high labor- and capital-intensiveness. There have been instances in which major enterprise expansion projects involving the construction of new shops have been undertaken under the guise of renovation.

Renovation and retooling at existing enterprises must become the primary direction of industry development in such regions as the Urals, the Ukraine, Belorussia and the Center.

In this connection, improving information on the scope of renovation and retooling and progress in carrying out capital construction plans through these measures acquires substantial significance. Reports being submitted must single out those construction sites at which such work is being done. Data on the number of enterprises being renovated by individual branch, ministry and department, on their proportion of all construction sites, and also on construction schedules and work volumes necessary to their completion, are also of great interest. In 1981, the proportion of enterprises being renovated was only 19 percent, and the proportion of new enterprises and enterprises being expanded was 81 percent. At the same time, it should be noted that the processing branches of industry have large reserves for increasing renovation and retooling work volumes.

In analyzing data on enterprise renovation, we need to reveal the reasons for delay in this work. Surveys show that such factors as the striving by client ministries and departments to obtain an increment in capacities foremost through the construction of new enterprises and shops, the unwillingness of a number of contractor organizations to conclude agreements on this work due to the small amounts and consequently the low profitability, and several others, but primarily the comparatively insignificant allocation of equipment for these purposes (the proportion of expenditures on equipment supplied to replace obsolete equipment at existing shops is only 19 percent of all expenditures on equipment in production construction) operate here.

It would be appropriate to supplement this information with indicators describing the economic effectiveness of renovating and retooling existing enterprises, such as specific capital investments, periods for recompensing expenditures and others, which state statistical agencies obtain as a result of periodic surveys of enterprises and projects put into operation at planned capacity in industry and agriculture.

It is equally important to provide the most complete and effective information on carrying out the task, set by the 26th CPSU Congress, of concentrating capital investments and material resources at the most important construction sites, limiting the number of projects being built simultaneously and thus reducing the amount of unfinished construction and stocks of uninstalled equipment to the normatives in the immediate future.

A census of construction sites in early 1981 provided an opportunity to take into account more fully the entire volume of production construction and resolve a number of complex methodological questions connected with properly defining the concepts of "construction site" and "project" in individual branches of the national economy and industry and, in accordance with this, to refine the current instruction on drawing up annual developer reports on enterprises being rebuilt and renovated (form No 8-ks).

Materials on ministry and department fulfillment of assignments on concentrating capital investments, their most appropriate distribution in the plan and reducing the number of new construction projects and the amounts of unfinished construction need to be prepared on the basis of the development of these reports. Form No 8-ks reports also enable us to determine the number of construction sites and projects at which construction has temporarily been stopped.

Having obtained appropriate data on these construction sites, a sample check should be run on observance of established procedure for moth-balling temporarily halted construction.

In analyzing the amounts of unfinished construction by comparing it with the normative, we need to show the change in its amount in a dynamic for individual ministries and departments and by republic, kray and oblast territory.

Reduction of the amounts of unfinished construction to the normative can be ensured only given cessation of the scattering of funds in the plan and the allocation of capital investments by year of construction in full conformity with the established construction duration norm, as well as observance of planned rates of capital work for each construction site. It is precisely these factors which must be especially considered when analyzing progress in meeting assignments on reducing the amounts of unfinished construction.

It is important to reflect both the qualitative as well as the quantitative aspects of unfinished construction. Using data on the degree of construction site readiness, we should determine how close the amounts of unfinished construction are to the estimated cost of fixed assets subject to being put into operation. Consideration must be given to how well inventories conform to the norms for 1982 and 1983 start-up construction projects.

The census data show that actual construction inventory readiness averages approximately two-fold below normative. In this connection, along with lowering the amount of unfinished construction to the established norms, we are also faced with another and equally important task, that of raising the percentage of construction inventory readiness to the normative level for each construction site, and especially for start-up sites. Only if this is done can we ensure the most effective use of capital investments and the fastest possible start-up of production capacities.

In order to accelerate and simplify work on developing and analyzing reporting data describing the degree of capital investment concentration, the USSR Central Statistical Administration is currently preparing to change over to processing form No 8-ks reporting data by computer.

Not only reducing the number of enterprises and projects being built at one time, but also lowering the estimated cost of construction, and foremost by reducing specific expenditures per unit of capacity put into operation, is of great importance. During the five-year period, they must be lowered by an average of at least five percent. This is not a simple problem and will first of all require improvement in the activity of planning-surveying organizations and improvement in plan and estimate quality. The more so, since the indicator of capital-intensiveness has been steadily increasing in many branches of material production in recent years in connection with the increased proportion of construction in the northern and eastern regions of the country, major environmental protection measures and certain other objective factors, as well as shortcomings and mistakes in planning construction sites.

Form No 8-ks reporting data and the materials from the survey of enterprises being put into operation (form No 1-ef) enable us to analyze progress in carrying out assignments on lowering construction costs. The USSR Central Statistical Administration Scientific Research Institute and its Capital Construction Statistics Administration are working out the forms and methods of sample surveys to study the technical-economic level of enterprises under construction and to be built. It is proposed that such surveys be conducted in individual branches of industry next year.

Organizing the in-depth, systems analysis of questions of capital investment effectiveness in the area of construction is one of the main tasks of state statistics agencies.

Providing the supervisory and planning agencies of the republics, krays and oblasts with regular information on progress in carrying out the assignments anticipated in the "Basic Directions" and the five-year plan on developing the productive forces of individual regions of the country is also a pressing task. Included are capital construction assignments stemming from the comprehensive target programs of economic and social development for the country, individual regions and territorial-production complexes. Monitoring of the utilization of funds allocated for these purposes and the start-up of production capacities and facilities in the nonproduction sphere must be ensured. It is especially important to develop reporting on the construction of facilities in the petroleum and gas region of Western Siberia where we anticipate obtaining more than half of all the gas extracted in the country by the end of the five-year plan and to lay about 20,000 kilometers of gas pipelines; development of this reporting began last year. The construction of five very large gas pipelines from Western Siberia to the Center and of the Urengoy - Uzhgorod export pipeline were called the central construction projects of the five-year plan by Comrade L. I. Brezhnev in his speech at the November (1981) CPSU Central Committee Plenum.

We need to intensify information on the construction this year of start-up facilities for metallurgy and chemistry, of nuclear power plants and coal-industry facilities, which were allowed to lag in the 10th Five-Year Plan in terms of start-up of new capacities, and especially in terms of monitoring the very rapid increase in open-pit coal-mining capacities at the Kansko-Achinsk and Ekibastuz coal pits, which are the main fuel base for developing power engineering and other branches of industry in Siberia and Kazakhstan.

The quarterly reporting organized in 1981 provides state statistics agencies with an opportunity to track progress in the construction of individual projects comprising territorial-production complexes and development of the complexes as a whole. In this regard, attention should be paid to the simultaneous start-up of production capacities as power and fuel enterprises, raw-material and processing production facilities, to the construction of roads, housing, municipal-cultural and personal-services facilities.

Capital construction must play a considerable role in carrying out the Food Program. Comrade L. I. Brezhnev emphasized at the May (1982) CPSU Central Committee Plenum that the program embodies a comprehensive, target approach to resolving the food problem. Enormous sums are being allocated to implement it. The agroindustrial complex will obtain approximately a third of all capital investments in the entire national economy in the 12th Five-Year Plan. In this regard, maximum attention must be paid to the prompt start-up of those projects permitting the greatest increment in foodstuffs quickly.

Summary capital construction reporting is being restructured in accordance with the plan for developing the agroindustrial complex in order to ensure the needed monitoring of fulfillment of assignments on building the complex as a whole and the branches and production facilities comprising it, as well as the procurement material-technical base and roads. The list of such projects must be determined in each republic, kray, oblast and rayon, and data on progress in building them must be subjected to systematic analysis and the information submitted to local supervisory agencies.

Warning information on construction sites at which capacities to produce consumer goods are being introduced is also of considerable importance. In many statistical administrations, such information is prepared upon expiration of the schedule for putting the facility into operation, while it is supposed to be prepared promptly and sent out within 3-5 days of receipt of the report. Warning information must contain concrete data on the reasons for the construction delay and, in particular, on failures to provide the construction site with materials, components, machines and machinery, as well as equipment for installation, indicating the enterprises and organizations late in supplying them. In order to do this, it is appropriate to make greater use of forms No 17-ks and 5-ks report data and reports on fulfillment of the construction materials and machinery delivery plan and on providing metal and reinforced concrete components (form No 16-ks); there must be periodic sample surveys of the causes of construction delays at the construction site itself. In this regard, we need to reveal cases of scattering of contractor organization capacities and material resources among many construction sites and projects and the diversion of workers from start-up and most-important facilities to less-important ones. For start-up construction sites for this year and next, we need to show the amount of unfinished construction at the start of the year and the construction stockpile as of the reporting date.

When preparing information on capital construction plan fulfillment in production branches, attention should be paid to the completeness of construction of production and nonproduction facilities, to the simultaneous start-up of production capacities, housing, children's institutions and other cultural and personal-services facilities at new construction sites in order that new enterprises being put into operation will be staffed with workers promptly.

It should be noted in speaking about tasks in the area of statistics on construction in the nonproduction sphere that they require a known direction in connection with carrying out the comprehensive social program for the 1980's.

In the current five-year plan, we anticipate building 530 million square meters of housing space in cities and villages, or approximately the level achieved in the 10th Five-Year Plan, with a slight increase in capital investments for these purposes. This situation results from the increased cost per square meter of housing in connection with its increased proportion in rural construction and the newly-mastered northern and eastern regions of the country, as well as with the changeover to building housing from improved plans. We propose increasing the start-up of housing space in rural areas by 26 percent as compared with the 10th Five-Year Plan. In this regard, its proportion in the overall housing construction volume nationwide will increase to 35 percent, as against 28 percent this past five-year plan.

We need first of all to organize systematic information on the construction of housing with all the amenities, as well as attached service buildings, children's institutions, schools, clubs and personal-services facilities on kolkhozes and sovkhozes. In light of providing rural areas with public amenities and developing individual stockraising and gardening, much importance is being attached to such construction. The available reporting data also indicate that the proportion of housing being put into operation simultaneously with service premises is still only slightly more than 60 percent of all housing being put up in rural areas, and that it is even lower in individual republics and oblasts. In this regard, materials must also be prepared on progress in carrying out assignments on developing the rural construction industry and creating capacities for standard-plan house-building.

Another important problem in nonproduction construction statistics is monitoring progress in carrying out measures to increase capital investment effectiveness in housing construction, on lowering the cost of that construction and putting the city development structure into proper order, as well as on the fastest possible introduction of the single-client service and the flow-line construction method. To this end, a one-time survey of developers doing housing construction in cities with populations of over 100,000 will be made this year.

In order to analyze the effectiveness of capital investments being directed into the nonproduction sphere, it is appropriate to make better use of the annual reports of developers, which contain data on the cost of housing and cultural- and personal-services facility construction being put into operation as a function of amenities, wall material and number of stories, as well as additional indicators introduced into the reporting using form No 34-ks, "Estimated Cost of Incomplete Work on Amenities and Unfinished Work on Housing Put Into Operation." These materials will help determine more accurately the actual cost of construction and changes in it as a function of individual factors, to show reserves for lowering expenditures and increasing capital investment effectiveness and for improving construction quality in the nonproduction sphere.

In recent years, considerable work has been done on restructuring the reporting and accounting methodology for capital construction in light of the CPSU Central Committee and USSR Council of Ministers decree "On Improving Planning and Strengthening the Influence of the Economic Mechanism on Improving Production Efficiency and Work Quality" of 12 July 1979.

An indicator describing the end results of all contractor-organization and developer activity -- commodity construction output -- has been introduced into current reporting by those organizations, as has an indicator for evaluating labor productivity growth on the basis of normative nominal net output.

Construction-organization work experience in planning and evaluating activity using commodity construction output indicates its positive influence on the results of many construction administrations and trusts, in which the time involved in installing facilities and the amounts of unfinished construction have decreased appreciably and profit and profitability have increased.

At the same time, restructuring construction production itself and the links associated with it and, in particular, improving the credit system and material-technical supply and increasing the responsibility of industrial enterprises for the prompt delivery of equipment and other items to construction sites have thus far been done slowly at a number of construction organizations and ministries.

There are also substantial shortcomings in planning commodity construction output: unevenness in distributing output volumes by quarter, causing unevenness and "storming"; understated amounts of commodity construction output; failure, in a number of instances, to link plans to indicators for putting projects into operation.

State statistics agencies must pay more attention to studying the activity of construction organizations under the new conditions, to revealing planning shortcomings and reserves for improving their work. It is appropriate to use the experience accumulated by a number of statistical administrations such as the Ukrainian and Kazakhstan central statistical administrations, which have set up special checks of construction-organization operation under the new conditions, monitoring the linking of plan indicators on commodity construction output and the start-up of capacities and succeeding in eliminating shortcomings.

We also need to analyze the effectiveness of introducing the new indicator: its impact on improving plan fulfillment in terms of putting capacities into operation, increasing the concentration of labor and material resources at start-up facilities, reducing construction duration and the amounts of unfinished construction, lowering work net cost, and raising the levels of profit and profitability.

Along with contractor-organization annual reports, in which new indicators have been introduced for this, we need to use reporting data from form No 8-ks for analysis and the form No 1-ef one-time survey data, which will now be developed in an implementer-ministry cross-section.

In order to deepen our analysis of the commodity construction output structure and the impact of this indicator on improving the activity of construction organizations, as well as studying the factors hampering improvement in the efficiency of construction production, a special survey of construction organizations will be made this year.

The new five-year plan lays out more favorable conditions for construction-organization activity and, in particular, a better balance of capital construction assignments and material-technical resources assignments, along with lower planned rates of construction-installation work. The delivery of up to 65 percent of the year's stocks of materials, machines and machinery to construction organizations must be ensured in the first half of this year. We anticipate the consolidation of existing construction-industry bases and the organization of new ones, especially in unutilized regions and regions in which new construction is concentrated, as well as the creation and equipping of mobile construction organizations and the systematic industrialization of construction. The proportion of fully prefabricated construction is to be increased from 40.1

percent of all construction-installation work in 1980 to 49.2 percent in 1985, and the proportion of large-panel and modular-unit house-building -- from 51 to 66 percent. The production of progressive types of materials and components, the use of monolithic reinforced concrete and other technical measures are being expanded significantly.

Questions of perfecting construction production must find reflection in statistical and economic information. More attention must be paid to preparing comprehensive reports on the efficiency and work quality of construction-installation organizations, using statistical materials on industry, technical progress, material-technical supply, finances and prices.

Labor productivity growth is an important indicator of construction production efficiency. Labor productivity in construction must increase 15 percent in the 11th Five-Year Plan, somewhat more -- 18-19 percent -- for the main construction ministries. In this regard, we plan to achieve the entire increment in work volume without increasing the number of workers, and even with a slight decrease, through labor productivity growth. Some 40 percent of the overall increment in labor productivity must be ensured by improving labor organization and construction production and some 60 percent must be ensured by introducing new technical measures and progressive construction and installation work technology.

These assignments are very taut if one takes into account the fact that labor productivity in construction increased only 11 percent in the preceding five-year period, and by 1-5 percent in the main construction ministries. In order to meet them, we will need to carry out a number of measures to significantly improve manpower use, reduce personnel turnover, and ensure smooth, uninterrupted work at construction sites and in all the interrelated links of construction production. We anticipate a substantial rise in the level of mechanization and industrialization and a substantial reduction in the use of manual labor.

State statistics agencies should make a thorough economic analysis of reports on labor in construction, and foremost of data on the use of manpower, machines and machinery, submitting information on instances in which the limit on numbers of workers employed at construction-installation work and in auxiliary production has been exceeded, on losses of working time, personnel turnover and reserves for increasing labor productivity growth. This can be facilitated by the new reporting item, the supplement to (quarterly) form No 3-t, which reflects data on the number of construction organizations permitting plan underfulfillment in terms of output and lower fulfillment that the corresponding period in the preceding year, outstripping average wage growth as against labor productivity growth, instances in which the limit on numbers of workers has been exceeded, and other indicators. It is also appropriate to use reporting on the work of cost-accounting brigades. The report data testify to the fact that this form of labor organization is being introduced into construction slowly, in spite of its advantages. The proportion of work being done by these brigades is only 40 percent of all construction-installation work.

A sample survey of intrashift losses of working time in construction will be made this year using time-and-motion studies, which will enable us to take these losses into account more fully. This same year, we also intend to set up a sample survey of manpower turnover in order to analyze in depth the reasons for this negative phenomenon. Surveys of intrashift losses of working time and of manpower turnover will be made systematically and sequenced so that each will be made a year apart. At the same time, the problem has arisen of taking absences and losses of working time into account more fully in current reporting. To this end, a special check of the reliability of data in reports using form No 3-t is being organized.

Construction has begun using the indicator of normative nominal net output, excluding material expenditures, to plan and evaluate fulfillment of labor productivity growth assignments, although experimentally, it is true, and in but a few organizations. Experience in using this indicator bespeaks the necessity of more thoroughly developing the normative base and improving the methodology for determining it. We should already be analyzing the results of using normative net output and its advantages over the existing indicator (overall work volume, including material expenditures).

Higher demands are also being made on analyzing report data describing the level of construction-installation work net cost. This indicator is now anticipated in the state plan which, as we know, sets assignments on lowering net cost and the maximum level of expenditures per ruble of construction-installation work. Based on the approved indicator, construction organizations, ministries and departments determine a planned net cost of construction-installation work being done for each reporting period in accordance with USSR Central Statistical Administration instructions.

When they receive construction-organization reports, especially for the first time, it is appropriate for statistical administrations to check the correctness with which the maximum level of planned and actual expenditures per ruble of construction-installation work are determined and reflected in the reports.

Report data show that many construction organizations are not meeting assignments on lowering net cost and on profit, caused basically by low rates of labor productivity growth, by overexpenditures of wages and materials, and by high nonproductive expenditures and losses. It is therefore important to ensure factor analysis of expenditures on construction production and, in particular, the amounts of overheads, and especially expenditures on administrative-managerial personnel, and analysis of changes occurring in the level of material expenditures in construction, as well as nonproductive expenditures and losses.

In light of the CPSU Central Committee and USSR Council of Ministers decree "On Intensifying Work on Saving Raw-Material, Fuel-Energy and Other Material Resources and Using Them Efficiently," of 30 June 1981, the current five-year plan anticipates saving 79 percent on rolled ferrous metals and lumber in construction and 5-7 percent on cement. The savings must be achieved foremost by introducing leading production methods, more efficient and lighter-weight materials and components. Lowering expenditures of the most important materials will be 60 percent through new-equipment measures and 40 percent by reducing losses of materials due to defects, remodeling, storage and transport losses, and other nonproductive losses and expenses.

In this connection, systematically organizing information on progress in meeting assignments on saving material resources and determining the extent of construction losses using report data from form No 20-sn and survey materials from individual construction organizations takes on substantial importance. It is also appropriate that we submit data describing total materials resources losses in cost terms, beginning with this year's report. In order to obtain such data, the USSR Central Statistical Administration is working out methods instructions and anticipates refining the existing reports using form No 2-s by introducing the indicator of "losses and nonproductive expenditures in terms of materials." Moreover, the plan will include, as of 1983, a new indicator, "material resources limit," that is the maximum level of material expenditures, in cost terms, per ruble of construction-installation work. A corresponding indicator will also be introduced into the reporting.

Work on improving the recording, reporting and economic analysis of the above indicators is aimed at improving the monitoring of the correct and effective expenditure of raw and other materials, fuel and energy and is a most important task for all state statistics agencies, one stemming from party and government resolutions on saving material resources in all ways possible.

The role of state statistics agencies in ensuring the reliability of reporting data and improving primary recording at enterprises and construction sites which still have reporting distortions and write-ups is being increased. When checking the reliability of reporting data on the start-up of fixed assets, capacities and facilities, as well as on meeting commodity construction output volumes, attention should be paid to the completion of all construction and installation work and all equipment installation outlined by the plan, of all start-up and adjustment work and the release of quality-standard output from capacities accepted for operation, bearing in mind that, under established procedure, production and nonproduction facilities must be released for operation with no unfinished work. We need to reveal failures to follow this procedure such as the acceptance of facilities with deviations from start-up complexes and illegal changes in the composition of these complexes in the course of work by state commissions. When write-ups, distortions and similar violations are revealed, statistical administrations must exhibit high principles and persistence and must eliminate from the reports data on the start-up of such projects and commodity construction output volumes, taking resolute steps to bring to responsibility those to blame for them. More extensive use should be made of USSR Central Statistical Administration and Stroybank recommendations on organizing joint checks and improving the quality and resultancy of this work.

Improving capital construction efficiency and quality thus set construction statistics large, complex tasks. Successful implementation of the measures adopted by state statistics agency workers based on 26th CPSU Congress resolutions on improving statistical indicators and methodology, improving the quality of report data development and economic analysis and intensifying work to ensure the reliability of reporting data will substantially raise the level of capital construction statistics.

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METHOD FOR DEVELOPING NORMS, STANDARDS FOR CONSTRUCTION SUGGESTED

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[Article by V. Korolev, chief of a USSR Gosplan department: "The Development of a Standards Base for Planning Capital Construction"]

[Text] A rise in capital construction effectiveness is directly linked with elimination of the causes of underfulfillment of plan tasks for introducing production capacity into operation, with a surmounting of the tendencies toward growth of specific capital investment and of amounts of uncompleted construction, and with a considerable reduction in the materials and labor intensiveness of construction. The solution of these problems lies in the formulation of a system of progressive technical and economic norms and standards, introduction of the system into planning practice, and use of the system as an active tool for controlling investment programs at all stages of their realization.

Back in 1922 V. I. Lenin wrote: "It is necessary to get both German and American literature. Collect everything that has any value, especially in regard to setting work norms....The main thing is the norms (that is, how many men for a given amount of work."[1] The standards approach to planning capital construction enabled the balancing method to be used back during the development of Lenin's plan for GOELRO [State Commission for the Electrification of Russia], and, in so doing, both the material and the financial balances for electrification were formulated.[2]

The main elements of the set of norms and standards for planning capital construction that now exist include indicators:

that define the general-economic and temporal characteristics of the investment process, and the standards for specific capital investment and the effectiveness of capital investment; and the norms for design time, the backlog of started construction, and construction time;

that characterize the material-substance composition of the construction product and that govern materials consumption in construction at the national-economy and branch levels: norms for the consumption of materials, structure, articles, pipe, piping fixtures, cable and other types of output per 1 million rubles of the budget-estimated cost of the construction and installing operations, as well as norms for consumption per 1 million rubles of the capital investment ceiling for equipment for outfitting facilities that are being built; and

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[1] V. I. Lenin. "Poln. sobr. soch." [Complete Collected Works], Vol 54, page 278.

[2] See V. I. Lenin. "Poln. sobr. soch.," Vol 42, page 341.

consolidated standards for labor expenditures in order to determine the ceiling on worker manpower and the standards for wages in construction, the development and introduction of which were called for during the 11th Five-Year Plan by the CPSU Central Committee and USSR Council of Ministers decree of 12 July 1979, "On Improvement of Planning and Strengthening of the Influence of the Economic Mechanism on Increasing Production Efficiency and Work Quality."

The single specific purpose of all these indicators is the creation, at minimal expense, of production capacity and the fixed capital necessary to provide for the proportions and pace of development of branches of the national economy that were contemplated in the state plan. Unity of purpose implies unity of principles, the reflection of which in the norms and standards transforms them from separate indicators into a unified system. These principles were established with the issuance of USSR Gosplan decree of 11 January 1980, "On a System for Progressive Technical and Economic Norms and Standards and Measures for Introducing Them into Planning." Their basic principles are: the provisioning of standard practices unity in the forming and the progressiveness of norms and standards, based upon maximal reflection therein of scientific and technical achievements and advanced methods for organizing production and labor that are being planned; integrated formulation of the standards base for various mutually coordinated chapters of the plan; and the provisioning of comparability and systematic updating of norms and standards that are used at the various planning levels.

To what extent does the existing system satisfy these principles? The answer to this question is determined to a great extent by the inclusion in the system of those types of norms and standards for which there was already methodological support, there existed a procedure for development, expert review and confirmation, and experience had been gained in their use by USSR Gosplan departments, Union-republic planning organs, and ministries and agencies during the preparation of five-year and annual plans.

The existing standard-practices documents contain requirements for insuring the progressiveness of norms and standards and the systematic updating thereof. However, in practice, the values of these indicators cannot always by far be called progressive or be used in planning. To a great extent this results from a simplified concept of the role of norms and standards in capital-construction planning. Thus, certain economists are of the opinion that the magnitude of the norms and standards should determine the importance of the plan draft variants, that is, the bulk, quantitative indicators of the plan (but should not depend upon them). An uncritical notion of this thesis leads to distortion of cause-and-effect relationships and unjustified transformation of the norms into a fetish.

It should be recalled that norms are produced from the social process of work (and are not its first cause), and that during the development of productive forces and production relationships, as K. Marx noted, mathematical proportions, that is, the norms and proportions of the social process of labor[3] that characterize this process, are created. The conclusion follows from this that, in order to set norms, that is, the level of the socially necessary expenditure of resources (or of time) for producing a product or performing operations, the level of development of the production forces and production relationships must be considered. It is this planned level that should bring into being the proportions that correspond to it. The influence of change in plan drafts, not only of qualitative but also of quantitative indicators,on the value of the norms can be considered indisputable.

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[3] See K. Marx and F. Engels. "Soch." [Works], Vol 23, page 358.

Another important practical conclusion is that if it is impossible, when developing variants of a draft plan, to balance the plan for some kind of resources, based upon the prescribed amounts of production thereof and the expected level of consumption and plan norms, one should first elucidate those elements of labor's productive forces upon which the level of socially necessary expenditures of this resource (the norm) depends, which can be changed when developing the productive forces with a view to achieving the desired result. For example, a restriction on capital construction volume because of a shortage of some kind of materials should, in our opinion, be viewed only as an extreme means for balancing plans, which is used only after thorough study and evaluation of all the possibilities for reducing expenditures of the scarce resources. It was this very question that was posed in our country in the prewar years of building socialism, when it was confirmed by a directive that "reduction in construction volume because of a shortage of materials is completely inadmissible...the only way out of the situation that has been created is a reduction in the consumption of deficit materials per unit of the structures being erected that corresponds to the total shortage."*

And, finally, a third conclusion: norms (or standards), unlike computed specific indicators. can and should be of a specific and directive nature. Achievement of the pace and proportions prescribed during forming of the plan should be viewed as the fulfillment of a state decision on the basis of which competent organs and local operators, guided by the principle, "maximum results at minimum expense," should themselves seek out methods and means for solving the practical tasks that ensue from the tasks of the national economic plan. From this point of view, technical and economic norms and standards, similar to the norms of the law, emerge as mandatory rules, sanctioned by the state, which regulate social relationships in the production sphere.

Strengthening of the legal aspect in setting norms is an urgent task for improving the planning of capital construction, which, in our opinion, should be done by means of appropriate legislative enactments. The inclusion of the most important norms and standards that determine the magnitudes of the expenditures and the effectiveness of capital construction within the approved plan can and should be the first step in this direction.

The activity of the builders during the Great Patriotic War, when the task of erecting facilities quickly and at minimum expense became vitally important, testifies to the possibility and desirability of this approach to questions of capital construction. Within the shortest time, norms for design work were reviewed, and institutes simplified design solutions excluded extravagance, and reduced labor and material expenditures. Designs were reworked to take into account the use of local materials. Thus, according to the prewar design, the construction of an open-hearth department at Zlatoust required 8,700 tons of steel and 74,000 m^3 of concrete. A review of the design solutions enabled this department to be built in 1942 with a total consumption of 5,200 tons of steel and 9,800 m^3 of concrete.

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*"Decree of the Commission on Construction under the Council for Labor and Defense." Moscow PLANOVOYE KHOZYAYSTVO," 1929, page 48.

The organization of design was subjected to considerable change. The designing of facilities was transferred from Moscow and large cities directly to the construction sites. This enabled the projects to be provided with design documentation in good time, local conditions and resources to be considered better, and, by not allowing any dispersion of forces and resources over a large number of construction projects, human and material resources were concentrated at the most important jobs. The pace of construction was accelerated 2-fold to 3-fold in comparison with prewar days.

Similar tasks on radical reduction in consumption of the most important resources at the country's construction projects and on a reduction in construction time should be solved now. For this purpose, planning norms and standards must consider the consequences of the realization of measures for improving the technical level and the management system in capital construction. For example, according to USSR Gosstroy evaluations, realization of the specific integrated scientific and technical program for 1981-1985 for developing progressive technology and industrial methods for construction will permit construction's labor intensiveness to be reduced 25 percent, its materials intensiveness by 10 percent.

On that basis, during the 11th Five-Year Plan period, the national-economic plan and the plans of ministries and agencies call for a strengthening of the work to save building materials during construction. Thus, while the builders saved a bit more than 1 million tons of rolled ferrous metals in 1980, the concluding year of the 10th Five-Year Plan, in comparison with 1975, it is planned in 1985 to save about 2 million tons of rolled metal in construction in comparison with 1980 by implementing a system of metal-saving measures.

In order to incorporate the expected effect in plan computations in good time the norms and standards should be based upon realistic design and budget-estimating documentation and those changes in the structure and amounts of expenditures that are necessary for creating the construction product, and they should determine the product's production cost and its budget-estimated cost during the plan period. Realization of this principle runs into definite difficulties. Thus, design organizations, especially those subordinate to the republics, continue to develop design and budget-estimating papers of inadequate quality. Selective monitoring indicates that irrational solutions are tolerated in enterprise master plans when the three-dimensional layout and the constructional parameters of the buildings and departments are determined.

Often the designs overstate the amounts of construction for auxiliary services and buildings, and errors occur in finding the budget-estimated cost and the work volume. The number of designs with such deficiencies is still great. In 1980 they averaged about 30 percent of those examined by Glavgosekspertiza [Main Administration for Expert Review] of USSR Gosstroy in a selective monitoring procedure, while for USSR Mintsvetmet [Ministry of Nonferrous Metallurgy], Minnefteprom [Ministry of Petroleum Industry] and Mingazprom [Ministry of Gas Industry] they averaged 50 percent or more.

The budget-estimated cost of a construction project is determined and capital investment and construction and installing work are planned on the basis of relatively stable norms and prices that were approved in 1969: budget-estimating norms [SNiP, Part IV); unified regional price lists for construction work; average regional budget-estimated prices for materials, articles and constructional structure; price lists for machine shifts for construction machinery and equipment; and budget-estimated prices for hauling freight for construction. At the same time, since 1969 practically all of the design norms (SNiP, Part II) and rules for executing operations (SNiP, Part III) have been newly developed or have been revised; about 600 state standards for constructional structure, materials and equipment for buildings and structures have been approved; and the wage for a number of categories of workers has been raised. USSR Gosstroy has introduced coefficients for work on the rebuilding of enterprises which increase the budget-estimated cost; the norms for amortization deductions have been increased; norms for overhead costs, expenditures for temporary buildings and structures, and additional expenses for performing work in winter have been reduced. Wholesale prices for machinebuilding products, metal, building materials and so on have been changed considerably.

Some of these changes have been considered recently in the budget-estimated cost of construction and installing work, and they disturb the stability of existing budget-estimating prices. Thus, USSR Gosstroy in 1980 introduced increased branch coefficients (1.04 and 1.05) for the full budget-estimated cost of work carried out by construction organizations on the land of existing enterprises in accordance with plans for rebuilding them. This important correction applies to all facilities for the main mission and for auxiliary and servicing purposes, both for rebuilt and for newly constructed facilities.

Since 1980 the procedure for determining budget-estimated prices for steel constructional structure has been changed, and this has led to an increase of about 15 percent in the budget-estimated cost thereof. This change alone, according to the data of branch ministries, has increased the cost of construction and installing work on facilities for heavy machinebuilding facilities by 2.5 percent, for ferrous metallurgy by 1.5 percent, for nonferrous metallurgy by 1.3 percent, and for industrial construction as a whole by 1.5 percent. The practice of using single-transaction wholesale prices for constructional structure, which, as a rule, are much higher than listed prices, continues. Expenditures for installing equipment in connection with the appearance of new types of equipment and industrial processes are being increased.

The structure of the budget-estimated cost of construction and installing work (by chapter of consolidated budget estimates) also is undergoing change. Thus the cost of preparatory construction and installing work includes expenditures for the cultivation of land that has been disturbed by construction work and for the development of new land to replace agricultural land that has been withdrawn for nonagricultural needs. The indicated changes are especially appreciable in electric-power engineering, the extractive branches of industry and transport construction. For example, expenditures for preparing land for construction of the Zaporozhskaya AES was 7.4 million rubles; but for the Khmel'nitskaya AES, which is similar to it, expenditures were 17.6 million rubles, taking into account the removal and laying of fertile soil and the restoration of disturbed land.

In production-type construction, the budget-estimated cost of construction projects that are influenced by the indicated factors has, in our view, increased by 5-6 percent or more during the last 2-3 years. Systematic USSR Gosstroy monitoring of this effect on the cost of construction, unfortunately, is not being performed.

This makes analysis and revision of norms and standards very difficult. Therefore, in standards-practice work (in calculations for drafts of annual and five-year plans), revisions have to be made to existing norms and standards, particularly to the average norms for the consumption of material resources per 1 million rubles' of the budget-estimated cost of construction and installing work. Otherwise, for example, a growth in the budget-estimated cost by 5 percent through change in the valuative factors involves error in determining the annual requirement of construction for rolled metal by about 1 million tons and of cement by more than 4 million tons.

Under such circumstances it is impossible to concur with the position of USSR Gosstroy, which has objected to USSR Gosplan's introduction of such revisions. The time has come when USSR Gosstroy and its Scientific-Research Institute for Construction Economics must, with each revision of the procedure for attributing expenditures to the budget-estimated cost of construction and installing work and with each revision of prices for materials, structure and articles, and with change in the structure of expenditures in the budget-estimated cost of construction, submit recommendations to USSR Gosplan about refinement of the appropriate norms and standards.

Thus, the progressiveness of norms and standards should be insured when they are formulated and updated, through the use of source information that reflects more fully advanced experience in design and construction, the characteristics of the system for setting prices, and the level of prices for construction output. In its turn, a revision of planning norms and standards that considers the achievements of scientific and technical progress therein should lead to an improvement in design documentation and to a review of the budget-estimating and production norms for resources consumption. Until recently this connection was a most weak spot in the realization of plans for measures to save labor, financial and material resources. Additional opportunities have now been created for strengthening it.

The CPSU Central Committee and USSR Council of Ministers decree of 30 March 1981, "On Measures for Further Improving Design and Budget-Estimating Matters," called for simplification of the system for setting engineering standards and for standardization in the area of design work, with a view to reducing the time between the completion of scientific research and experimental work and the reflection of the results obtained in standards documentation, yet it does not restrict the creative initiative of designers that is aimed at reducing budget-estimated costs and labor and materials intensiveness in construction. Simultaneously, it was decided to increase the ceilings on expenditures for official trips that are connected with collecting source data for design work and with inspecting existing buildings and structures of enterprises that are subject to reconstruction, expansion and reequipping. This principle has been extended to designers' surveillance over construction and to the development of working drawings directly at the sites of construction. Also planned is a set of measures for improving the system for awarding bonuses to workers of design and industrial-design organizations for maximum introduction of the achievements of scientific and technical progress and for implementing resources-saving policies in construction.

While the requirement for progressiveness, despite the complexities noted in realizing it, is pivotal in existing standard-practices documents for setting norms for capital construction, the principle of integration and mutual coordination of various groups of norms and standards still has not been reflected in the methods themselves for setting norms. This situation is occasioned to a great extent by the dispersion of forces of scientific institutes in this area of research and standard-practices work. Neither NIIPiN [Scientific-Research Institute for Planning and Standards] under USSR Gosplan--the prime organization for standard-practices support of the norms and standards system and for the preparation ofr interbranch documentation on questions of setting norms--nor NIIES [Scientific-Research Institute for Construction Economics]--the prime economics institute for construction--has achieved results in solving the indicated problem.

Practically the whole standards base--standards for capital investment, norms for the consumption of material resources and equipment, and temporary norms and standards--is being formulated on the basis of representative facilities. However, the mix of intrabranch areas of construction and types of production facilities for which the enumerated indicators are being developed are comparable by no more than 50 percent. Moreover, some representative facilities are being selected for standards for specific capital investment, and others for material norms and standards; and norms are being set for equipment, cable products and pipeline fixtures in accordance with specially selected designs for representative facilities.

Thus, the standard for specific capital investment for the construction of plants for soft rooofing materials is computed on the basis of the average cost per unit of capacity of such plants--210,000 rubles' worth per 1,000 m^2 of roofing felt; calculations for a plant with a specific capital investment of 150,000 rubles are set on the basis of norms for the consumption of materials, articles and constructional structure per 1 million rubles of budget-estimated cost of construction and installing work. The differences in the amounts of the named indicators for certain industries reaches 2-fold to 3-fold (particularly in the coal industry).

Beyond the indicated divergences, considerable differences are being found in the nature of construction projects and the structure and amounts of resources required. For example, for Povolzh'ye water-resources management construction, the following structure of standards for specific capital investment, effective 1981-1985, was adopted for the irrigation and discharge grid (in percents of total length): 5.5 percent of the facilities and of the grid for earthen channel, 4.0 percent for facing reinforced concrete, 16.2 percent for flumes and 74.3 percent for the pipes. However, according to the consumption norms for material resources per 1 million rubles that USSR Minvodkhoz [Ministry of Land Reclamation and Water Resources] proposed in 1982 for this same region, 2 percent of the facilities and the grid for the earthen bed, 14 percent for the facing, and 84 percent for the pipes. In this case, the cost of construction and installing work per hectare of irrigated area under the USSR Minvodkhoz recommendations for representative facilities for calculating consumption norms for materials was 9 percent lower than the cost adopted in the calculations of the standards for specific capital investment.

The way is thereby paved for distorting the consumption norms and construction requirements for resources, the principle of comparability of norms is violated, and the potential for using the norms is sharply restricted. The same picture was observed also during the development of time norms (for the duration of design, construction and assimilation of capacity). Therefore, the CPSU Central Committee and USSR Council of Ministers decree of 30 March 1981, "On Measures for the Further

Improvement of Design Matters," recommended that USSR Gosstroy and the ministries work out unified norms for the design, construction and assimilation of capacity.

There are differences also in standard practices documentation. For example, in selecting designs for representative facilities for the purpose of developing standards for specific capital investment, existing standard-practices documentation calls for an analysis of trends in the development and siting of industries, forecasts of scientific and technical progress, and technical and economic substantiation of the standards. But these are not reflected in the standard practices for setting norms for the consumption of materials, articles, structure and equipment. This situation leaves room for a subjective selection of representative facilities that are adopted for computing norms and standards. Moreover, it is one of the causes of later difficulties in coordinating the various chapters of the plan for resources.

NIIPiN under USSR Gosplan, which has been assigned the functions of the prime organization for developing standard-practices for supporting the norms and standards system and for preparing model interbranch documentation on questions of setting norms and of expert review of the norms, should eliminate these deficiencies. This institute must concentrate its efforts on completing in the next year or year and a half studies on the indicated problem and insure the output of standard-practices documents for forming a set of norms and standards for the purpose of planning capital construction on a unified information base.

The base necessary for solving this task during the current five-year plan exists. Actually, the designs of representative facilities are chosen, as a rule, from among those which, in the opinion of the developers, are characteristic for construction during the plan period and are economically effective, and for which integrated design and budget-estimating documentation exists. Consequently, an evaluation of the quality of the designs and the development of procedures for forming integrated norms and standards, based upon comparable mixes of facilities and on a unified body of technical and economic indicators for designs--this is the way to improve the system of norms and standards for planning capital construction.

The question of methods for forming a set of planning norms and standards is complicated. The basic reason for this is the lack of precise information about future technical and economic characteristics, including the resources characteristics of the facility, for the planning of capital construction. It is also undesirable to rely completely on heuristic methods and models for setting norms, since authentic source information can be used for the indicated purposes. These include indicators of specific designs developed during the preplan period, as well as measures for raising the technical level of construction that were contemplated for the period being planned.

Possibilities for forming norms and standards are opened up with the use of combined methods that have been substantiated and used in practical work to evaluate the quality of construction programs and designs, including work by USSR Gosstroy. The logic of solving the task of forming a set of progressive norms can, in so doing, be like this. Information about designs for various branches (and types of production facilities) that have been regularized in accordance with the system of indicators and levels of information requirements is accumulated in the data banks of the ministries' ASU's [automated control systems] and USSR Gosplan's ASPR [Automated Control System for Planning Calculations]. In order to form standardizing indicators for facilities for a certain functional purpose, information about them is extracted from the data bank, and, in passing through the filter of verification for comparability, serves as a basis for the selection of analog designs. The source information is a rectangular matrix, the dimensionality of which is the number of analog designs multiplied by the number of indicators that characterize the design. A collection of such indicators is established previously by experts or is determined in an automated regime. In order to execute logical monitoring over the authenticity of these indicators and the statistical analysis thereof, it is desirable to proceed from their changeability (the coefficient of variation). Such monitoring will help to clear up the matrix of indicators: it will reveal anomalous values and eliminate errors.

Filling in the matrix with indicators that are presented in a ranked scale makes it possible to reduce the heterogeneous criteria for designs to a single scale and then to the provisional criterion "K," for integrated evaluation of the design quality. Moreover, in ranking indicators, it suffices to have an approximate evaluation of them, thanks to which the labor intensiveness of preparing the information is reduced; and indicators whose quantitative evaluation is difficult (social significance, architectural merit, and so on) yield to ranking. As a result, we obtain a number of designs ranked by the level of progressiveness "K."

It is apparent that, taking the best design as the sole representative facility for developing integrated norms and standards would mean violation of the requirement of representativeness of the reference. For these purposes it is also impossible to take average indicators of the designs (as is frequently recommended in standard-practices documents), since they incorporate a burden of unsatisfactory design solutions. Therefore, the problem arises of separating the ranked sample of designs into classes.

The rules for artificial division of samples has been developed in the theory of mathematical statistics. However, logic methods also can be used for this purpose. For example, according to an evaluation by Glavgosekspertiza of USSR Gosstroy, low-quality designs make up each year an average of 30-35 percent of the total number of them. Information of this sort can be adopted for the division of all samples into classes, for example, into designs that are "satisfactory" or "unsatisfactory" (for the purpose of forming norms).

The described methodological approach was approved in the selection of more than 100 comparable designs for industrial buildings that were characterized by commonality of operating processes. Computations of reference (or average) values for "satisfactory" designs that were made per unit of construction volume of a building in accordance with the criteria of budget-estimated cost, the labor intensiveness of erecting the facility, and the expenditure of reinforced concrete enabled the discovery of hidden reserves for reductions: of 14.6 percent in the budget-estimated cost, of 17.1 percent in labor intensiveness, and of 11.6 percent in the consumption of reinforced-concrete (in comparison with averages for the whole sample of values).

Design and construction practice confirm the existence of such reserves in most designs. For example, in 1979 the Moscow Industrial Construction and Design Institute and Krasnoyarsk's PromstroyNIIproyekt [State All-Union Scientific-Research Institute for Industrial Construction Design] developed measures for increasing the effectiveness of design solutions for Krasnoyarsk Heavy Excavator Plant facilities that allowed a 1.2-fold reduction of construction and an approximate 0.5-million man-hour reduction in labor expenditure to be called for. In so doing, there were substantial savings of material resources for various facilities and types of work. Thus, thanks to the use of prefabricated reinforced-concrete grillages, full use of the carrying capability of pile footings, and more precise methods for analyzing footings, concrete consumption in these operations was reduced by 28 percent and steel consumption by 25 percent, the budget-estimated cost was reduced by 19.7 percent, quality was raised greatly, and the labor intensiveness of work at the job site was reduced. A similar effect also was obtained for other operations and at other jobs during the erection of enclosure structure and framework for industrial buildings of this plant (with respective savings of 29 and 3 percent for concrete and 18 and 22.5 percent for steel, and the budget-estimated cost also was reduced by 8.2 and 23.3 percent.

Practical realization of the approach to norm-setting that was described above is facilitated by the fact that it is based upon the use of general-purpose programs that are used for computer evaluation of designs. The concrete analysis of better-quality designs will permit effective design and engineering-organization solutions to be found and recommended for introduction. In so doing the way is paved for the basic possibility of transferring from blocks of branch Capital Construction ASPR subsystems and from USSR Gosstroy Ekspertiza-type automated information systems to the Norms and Standards ASPR subsystem for integrated data on technical, economic, engineering-organization and resources indicators for capital construction jobs and for forming, on that basis, integrated norms and standards, including indicators for economic resources.

Establishment of the boundary magnitudes of their values (for example, in a group of the best designs) as norm-setting indicators is still more promising. However, the use of such limiting norms and standards is interdependent with change in the technology of planning calculations, which, in turn, requires new methodological developments. The basic advantage of this method for setting norms is, in our opinion, a rise in the role of such norms and standards as management tools, when the decision adopted at higher planning levels about the acceptable value of the indicator for which norms are being set lies within the area of realistic values but requires a set of measures for fulfilling the construction program by the prescribed deadlines and with limited resources.

In practice, one collides with the fact that in preparing drafts for norms, standards and other planning indicators, the developers (ministries and agencies) formulate recommendations subjectively, orienting themselves to the creation of suitable circumstances for their subunits, and they do not always concern themselves with the validity and strenuousness of the indicators. Therefore, a search for new methods for forming norms and standards that would consider the quality of the source information is necessary. Let us examine one of the possible ways for solving such problems.

Cases of overstating norms for the consumption of material resources and equipment and the norms and standards for capital investment and capital construction versus the values of the corresponding indicators that actually exist or are realistically achievable during the planned period are well known. This tendency was graphically demonstrated during the preparation by individual ministries and agencies of drafts for tasks for saving material resources in construction during the 9th, 10th and 11th Five-Year Plans. The striving of the executors to understate the magnitude of the savings, which depends upon the activity of the ministries and agencies--the developers of the recommendations--and to link up savings mainly with the receipt from industry of effective materials and substitutes in sharply increasing amounts, as well as the differences in the level of work organization and skills of the executors, were telling on the quality of the recommendations about expected reductions in material-resources consumption. It was not possible to check on all these recommendations because of their large number (more than 30,000) and the lack of detailed information. The task arose of objectively evaluating and generalizing the recommendations of the various developers, establishing consolidated amounts of resources saved in capital construction, and differentiating them by ministry and agency.

In order to solve this problem, a method was worked out[5] which was oriented toward evaluating the quality of the recommendations, discovering authentic values for the indicators being examined, and obtaining consolidated, aggregated indicators that are free from errors and deficiencies of the source information. The average values that are obtained as a result of its use have been shifted, figuratively speaking, into the area of more authentic values and are practically free of the burden of the unjustifiably understated values that were contained in source recommendations, which had not been studied adequately or had been subjectively distorted. At present, algorithms and a set of programs for realizing the referenced method have been worked out on a computer at USSR Gosplan's GVTs [Main Computer Center]. Algorithms were used to calculate variants of the draft of tasks for saving materials in construction during the 10th and 11th Five-Year Plans.

Introduction of this method has enabled the tasks to be studied more exhaustively and recommendations to be made to the executors about refining plans for engineering-organization measures. Modifications of the method can be used to evaluate the authenticity and progressiveness not only of tasks for saving resources but also of other indicators of standards, if there is an adequate number of variants of the recommendations for one or a group of homogeneous indicators.

The improvement of traditional methods of setting norms and the development of new directions in scientific-methods support for calculating standards will promote a considerable rise in the quality of plans for capital construction and for supply-and-equipment support thereof only where there is simultaneous improvement in organization of the work to prepare the standards base. A lack of coordination of the forces of planning organs and USSR Gosstroy and their scientific-research and design institutes in this matter leads to unjustifiably large costs and does not permit plan calculations to be supported with the required set of norms and standards. Obviously, it has become an urgent necessity that USSR Gosstroy and USSR Gosplan jointly formulate and approve integrated plans under which scientific-research and design operations will create a standards base for the national economy's planning of capital construction. Such a state of affairs will enable the organization of standards operations and the financing thereof to be regularized and monitoring over deadlines and quality in the development of norms and standards to be improved.

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[5] See V. A. Korolev and N. A. Rychkova. "The Heuristic Method for Forming Planning Indicators for Saving Material Resources in Capital Construction," in the book, "Sovershenstvovaniye metodov normirovaniya raskhoda materialov v stroitel'stve" [The Improvement of Methods for Setting Norms for Materials Expenditure in Construction]. Moscow, NIIPiN [Scientific-Research Institute for Planning and Standards] under USSR Gosplan, 1980.

It seems to us that improvement in the organization of standards work requires the creation within USSR Gosplan's GVTs of an interbranch bank and, within ministries, of branch banks, of information about technical and economic indicators, including resource indicators and indicators for enterprises, production facilities and buildings and structures that have been built or for those that are being designed. Planning workers should have the opportunity to use such information responsively for work on updating norms and standards.

The system of planning documents also should be improved, so the standards services will receive in timely fashion the necessary information on the structure of construction and installing work (for example, on the types of reproduction of fixed capital, also from a regional point of view), low-ceiling construction jobs, and other peculiarities and conditions for construction that take shape in the national economy during the plan period. In this connection, USSR Gosplan subunits that plan capital investment and capital construction should, in our opinion, get from ministries and agencies increased informativeness in the list of titles of construction projects and in stock records, so they will reflect all the indicators envisioned by USSR Gosplan. It is necessary simultaneously to determine the composition and amounts of information needed by other USSR Gosplan subunits and by the ministries and agencies, which also can be used as a result of computer processing of the whole body of stock records and lists of construction-project titles.

Thus, the system of norms and standards for planning capital construction should be improved on the basis of developing a methodology and improving the organization of norm-setting, and introducing, along with its traditional methods, which are based upon direct technical and economic calculations, modern methods--systems analysis and mathematical-economics methods, which permit the skills and experience of planning organ workers to be used more fully for solving complicated economic problems. As a result, norms and standards should become an active tool of management of the investment process and should provide for the realization of specific state arrangements for developing the national economy and for the possibility of adopting decisions about raising capital construction effectiveness.

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11409
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CONSTRUCTION

CONSTRUCTION OF ACHINSK OIL REFINERY BEHIND SCHEDULE

Moscow SOVETSKAYA ROSSIYA in Russian 20 Apr 82 p 2

[Article by A. Shchegolev (Achinsk-Krasnoyarsk): "They Were Waiting for the Commands...."]

[Text] The deadlines for starting up this plant have a history of their own: the Achinsk Oil Refinery should have yielded its first output back during the last five-year plan. After failing to cope with the task, the builders gave assurances that in 1981 they would keep their word without fail. However, even today they are not close to the desired target.

Krasnoyarskiy Kray's need for its own oil refinery appeared long ago, for this region has by rights been called the springboard for construction in East Siberia. The immense fleet of machinery that operates in this region cannot get along without fuel. Without it the haulers and excavators, and the bulldozers and truck cranes will stand idle. Gasoline and diesel fuel come to Krasnoyarsk from all parts of the country. Nevertheless, there is not enough of it. In brief, the startup of the Achinsk NPZ [oil refinery], the first in the kray, is being awaited with impatience.

Why is such an important construction project spinning its wheels? In the opinion of Deputy Chief of Glavkrasnoyarskstroy [Main Administration for Construction in Krasnoyarskiy Kray] A. Rudakov, who answers directly for the refinery's construction, the main deficiencies took root at the start of last year. For 3 months Achinskalyuminstroy [Achinsk Trust for the Construction of Aluminum Plants] had to rush its main forces to the uninhabited site. Up until then the trust had worked persistently on erecting facilities for the alumina combine. It is not simple to work in an open field without lockerrooms, a dining room and warehouses. Time was lost because of this.

However, this judgment needs commentary. The region of the future refinery would scarcely be a surprise for Achinsk builders: for almost 10 years they had been erecting this refinery before a line appeared in the plan about a startup facility. It was another matter that this turn of events caught everyone off guard. When there was no goal for a facility due for early startup the work went on neither unsteadily nor unstably, and the most important facility was considered secondary. The contractor had not been very worried about augmenting the collective, about reinforcing it with skilled workers. For the sake of correctness, let us say that even the client--Minneftekhimprom [Ministry of Petroleum Refining and Petrochemical Industry]--was not too concerned at that time about the project's fate. The consequences of the spectatorlike attitude is perceptible even today, after the directed deadlines have long since passed: the builders clearly do not have enough equipment and materials, since the schedule for delivering them came into being only this year.

"But what can we do?" asks Ye. Dem'yanenko, director of the plant that is under construction. "Until the line items about introduction appeared, no one had given us either pipe or reinforcement...."

It is a familiar situation: the interdependent activities blame each other. This exercise would seem to be useless. They had been waiting for commands. And when one came, they turned out not to be in a position to carry out the intended amounts of work.

It must be said that domestic-services premises are being erected for the plant, but had they been ready, about one and a half thousand workers could have been employed. But only empty shells of buildings, without windows and without doors, greeted the people's controllers. At the same time, just last year 215,000 rubles and 7,000 man-days were expended on the installation of temporary lockerrooms for the construction workers. And this during a work-force shortage. There were more than 8,000 man-days of enforced idleness because of untimely delivery of building materials. A selective check alone indicated that 37,000 rubles of the wage fund and 7,000 rubles' worth of materials were expended last year to repair construction defects.

Even the trust Achinskzhilstroy [Achinsk Housing Construction Trust], which is engaged in erecting housing, children's institutions and facilities for education and public health, regularly fails to fulfill established tasks. Last year a 1[illegible] unit apartment house and a kindergarten for 320 children were to be turned over, but they also had not been completed. Yet the shortage of housing and children's institutions, in their turn, do not permit either the plant or the construction organizations themselves to be fully manned.

"A recent inspection," explains Secretary of the Achinsk City Party Committee Yu. Taldykin, "noted that a substantial amount of work carried out--in the amount of about 7 million rubles' worth--had no relation to the complex at the plant that was due for early startup."

In other words, funds were being scattered, and the final mission appeared to have been moved aside. Only in the middle of March did the client and the contractor discuss which facilities of the enterprise should make up the complex due for early startup. It would seem that the builders and installers should work in three shifts these day. But they have been stuck in the mud--it turns out that the necessary utility and service lines still have not been laid.

The bureau of the Krasnoyarskiy Kray party committee examined at a recent regular meeting the question about introducing the plant's first phase. Again, a concentration of efforts, a strengthening of the builders' collective, and an increase in the responsibility of Minneftekhimprom for turnover of the facility due for early startup were discussed. And this was named as the reason for the lack of a support system for construction: in Achinsk only half of the required housing had been turned over, and there were not enough children's institutions, hospitals and polyclinics. Knowing about this, Glavkrasnoyarskstroy planned again to send housing-construction brigades to the industrial facilities. Is that the way?

The RSFSR People's Control Committee examined the state of affairs at the refinery's construction and seriously punished plant director Ye. Dem'yanenko and Achinskalyuminstroy manager O. Ashirov. The announcement of A. Rudakov, O. Ashirov and Ye. Dem'yanenko that capacity for refining 6 million tons of oil annually will be put into operation in September 1982 was adopted for information purposes.

No less important is a rapid and businesslike reaction of the construction organizations and USSR Minneftekhimprom aimed at a radical change in the existing situation.

11409
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V. ALEKSEYEV, DEPUTY CHAIRMAN OF USSR GOSSTROY, ON MECHANIZATION

Moscow STROITEL'NAYA GAZETA in Russian 2 Apr 82 p 2

[Article by V. Alekseyev, deputy chairman of USSR Gosstroy: "Based on modern technology"]

[Text] Increasing the quality of planning is a fundamental principle of scientific and technical progress, an important condition for growth in efficiency of social production. This is the target of the decisions of the 26th CPSU Congress, resolutions of the CPSU Central Committee and the USSR Council of Ministers on improving the economic mechanism and planning and budgeting affairs. The broad program of measures developed by USSR Gosstroy, ministries and agencies was discussed in detail in November, 1981 at an all-union convention of planners and was corrected on the basis of remarks and proposals.

Pursuant to the adopted program instruction "SN 202-81" was approved with respect to the composition, sequence of development, coordination and approval of planning and budgeting documentation for the construction of enterprises, buildings and structures. The basic directions were indicated for developing standardized planning for the years 1981 through 1985 and up to 1990 in the sectors of industry, transportation, communication and agriculture. Inventories were made of progressive standardized economic plans and repeatedly utilized individual ones; territorial catalogs of reinforced concrete structures for industrial application were drawn up. The Surveying Price List for capital construction and several other instruction and guideline manuals were published.

All planned measures are being implemented. But work is not being attuned to the new organizational base everywhere; high end results are not being used as bench marks in many cases. The latest scientific and technical and industrial achievements, savings in material and labor resources, heat and energy, and requirements for environmental protection are still not being fully taken into account in many plans. The construction organization sections at the institutes are drawn up formally, but no provision is made in them for the necessary level of industrialization, the application of progressive methods of work production or a reduction in their labor intensiveness.

The selective inspections systematically conducted by USSR Gosstroy reveal many delayed technical decisions, counting losses and errors, which bear witness to the low level of responsibility of institute workers for the quality of their plans. As before, a substantial defect is the lack of reliability in determining the budgeted cost of facilities. More and more plans for enterprises are being drawn up, designed for many-year realization, with no clear separation of the start-up phases and complexes. It goes without saying that this all results in the obsolescence of plans, an increase in the budgeted cost of construction and immobilization of capital investment.

Improvement in planning and budgeting work must be done in conformity with the basic trends of enterprise and structure planning approved by the ministries and agencies for each five-year plan, and also on the basis of plans to elevate the technical level of the sectors in which maximum utilization should be made of technological advancements, new equipment, building designs and materials. A value way to carry out these plans and increase planning quality involves planning assignments. In them the customer must establish specific requirements for the incorporation of new technology and advanced experience, indicators for effectiveness of capital investments, reduction of material intensiveness and labor intensiveness, and increased labor productivity.

Standardized planning is very important in elevating the industrialization of construction and documentation quality. It should be aimed at increasing the amount of totally modular construction, reconstruction and technical re-equipping of industrial facilities, at reaching a higher level of sector, intersector, interspecific and intrasite standardization of buildings and structures. Standardized plans and their variants must be drawn up which would fully consider the specific natural and climatic conditions, future development of standardization of sanitation, electrotechnical, automated and other systems. Special attention should be paid to the organization and timely revision and renewing of the standardized documentation stock. This obliges the ministries and agencies, and institutes, to create data bases using elaborated and implemented plans, accumulating information on the effectiveness of their basic decisions, technical and economic indicators, etc. The analysis of such information makes it possible to develop high quality projects, to have more reliable estimates, and to better think through the organization of construction.

The experts know that the basic factors characterizing quality can be defined easily when evaluating the quality of new plans. It is much more difficult to set up comparable indicators. The creation of an information base greatly simplifies this work and assists in making a more accurate selection of planning analogs; it helps to make an objective determination of the quality of documentation for material encouragement of institute workers, primarily to achieve maximum use of scientific and technological advances, application of efficient production technology, efficient volume planning and design decisions, and up-to-date organization of construction and assembly work. The data base should be based on the project certificate which, according to protocol, is sent to USSR Gosstroy.

In order to increase the reliability of the budgeted cost of facilities which take a long time to build, USSR Gosstroy has approved "Methods indications" which require the consideration of changes in pricing factors stemming from scientific, technical and social progress and environmental protection measures. Ministries and agencies, the Councils of Ministers of the Soviet republics this year must work up adjustment coefficients which make allowances for cost changes related to these factors. USSR Gosstroy has, meanwhile, decided to adopt a mean annual correction factor--up to three percent of the budged cost eimate for equipment and construction and assembly work.

A large reserve for enhancing the quality of planning resides in the automation of processes, whose level should rise from 4 percent to 15-20 percent within the five-year plan. Work experience gained by the institutes showed that the use of automated devices makes it possible to achieve optimum decisions and to implement multiple modifications, and to reduce the cost of individual facility components by 5-7 percent, save 2-5 percent in supply and energy costs, and decrease the amount of time required for drawing up documentation. A trend is now becoming clearer and clearer toward a shift to automation of individual operations: engineering and technical, technical and economic, estimate calculations--automation of the entire job or specific parts thereof.

The experience accumulated in the country has made it possible to start setting up automated planning systems (SAPR) in the main subunits of institutes. Work is simultaneously being done to automate data retrieval, planning and management services. Seventy-five ministries and many scientific research and planning institutes are taking part in the implementation of this comprehensive program. Agency councils, supervisory organizations have been set up to coordinate the work and their functions have been established. Ministries and agencies, unfortunately, have yet to provide sufficient coordination of the subunits' activities.

Implementation of the programs largely depends on the timely provision of planning organizations with the necessary automation hardware. The ministries and agencies should first re-distribute their hardware on hand to speed up the resolution of this problem.

In the last few years, USSR ministries and agencies, the Councils of Ministers of the Soviet republics have failed to pay enough attention to perfecting the network and to refining the specialized nature of planning and surveying organizations. The number of personnel has undergone an unjustifiable increase chiefly because new, weak subunits were set up at random--branches, design offices, planning and design offices, complex departments and groups. Many of their workers, not having sufficient expertise and qualifications, are simply unable to work up plans at a level of quality that meets today's needs. This has also led to a duplication of effort of central, republic and local institutes.

The ministries and agencies have not given sufficient attention to problems of managing planning and surveying organizations. This is confirmed by the fact that many ofthem must answer to either capital construction administrations or to various sector chiefs who can not assure the preparation of a complicated document such as a modern project. There are a great many omissions made in the work of sector ministries responsible for supervising the planning of the construction phase of industrial facilities.

The engineering survey service, which contains 1300 organizations answering to different superior organizations, needs to be straightened out. But only 162 of them are large territorial or type-specialized organizations. Nearly 75 percent of all engineering surveys in the land are carried out by minor unspecialized organizations, frequently operating in the same territorial area alongside other institutes or associations.

Life urgently requires that we elevate the role and responsibility of territorial and sector-leading institutes; that we achieve improvement in working conditions and increase work efficiency, improve the network of planning and surveying organizations, elimination duplication of effort, abolish minor and unqualified subunits. The true path to the enhancement of planning quality is to bring planning closer to the sites of concentration of construction, and to plan with further specialization and modern techniques in mind.

These are the fundamental, most vital problems of increasing the quality of planning defined by decisions of the party and the government. The ministries and agencies will have to do a great deal to solve these problems successfully, to activate the creative initiative of planners, surveyors and builders to seek effective, progressive solutions.

8716
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MANAGEMENT IN CAPITAL CONSTRUCTION

Moscow STROITEL'NAYA GAZETA in Russian 6 Jun 82 p 2

[Article by G. Lubenets, minister of construction of heavy industry enterprises of the UkSSR: "In search of a flexible system"]

[Text] Over the course of several months, in line with the plan of publications dedicated to the search for means to improve the management mechanism, Stroitel'naya Gazeta has held a discussion of problems of improving the structure and methods of management in capital construction. We remind the reader that the inception of the wide exchange of opinions on issues of structure and methods of management was the article by G. Lubenets, minister of Mintyazhstroy (Ministry of Heavy Construction) entitled "On the road to the companies", published on 15 May 81.

The editorial board suggested to the author of that article to summarize the discussion, assess readers' proposals based on the management experience gained at Mintyazhstroy UkSSR.

The discussion is completed, but the heading remains. The editorial board will continue to publish materials on realignment of the management system and incorporation of standardized structures.

Construction management problems are upsetting a lot of people today. The entire discussion printed in the pages of Stroitel'naya Gazeta essentially began with the primary question: how many management links should there be--two, three, four? I want express a summary opinion: for the Soviet and republic ministries, this issue can and must be resolved on the basis of local conditions and opportunities. Work experience of UkSSR Mintyazhstroy and other ministries shows that the ministry apparatus can manage construction in the presence of 10-15 large territorial associations, with a work volume over 100,000,000 rubles each. As an exception there may be up to 20 medium-volume associations.

On this basis, for republic ministries with a plan to perform over a billion rubles per year of construction and assembly work with permission of the USSR Council of Ministers, it is advisable to establish a four-link structure, by analogy with the industrial management structure in the large republic ministries of the Ukraine, Kazakhstan and other republics.

The intermediate link between the industrial construction and assembly association, trust and republic ministry may be the chief territorial administration for construction or the construction and assembly enterprise group. Many know what a chief territorial administration and enterprise group constitute. In our ministry, the enterprise group combines from four to ten construction and assembly trusts and construction administrations, as well as specialized trusts of Dorvodstroy and Stroymekhanizatsiya. In most instances, the enterprise group supervises industrial associations or two or three industrial enterprises producing reinforced concrete structures, lumber treatment and mechanical repair plants, and has the automotive transport services of its motor pool. The trusts remain the primary administrative link, the basic shock force at the forefront of construction.

With an adequate amount of jobs, the enterprise groups generally specialize according to the sector principle: some in erection and reconstruction of capacities of group A, others in construction of residences and recreational facilities. Three oblasts have enterprise groups which include construction organizations that perform a mixture of construction jobs.

But what can we call this extremely necessary administrative link: an enterprise group or a chief territorial administration? This question is not fundamental to us. We have preferred the concise term "enterprise group". Our enterprise group organizes all routine and schedule planning, provides material and technical resources, personnel training and housing, monitors the performance of construction time-tables. We are afraid that the re-naming the enterprise group as a territorial central administration and subsequent modification of its functions would turn this union into an extension of the ministry machinery in the oblast.

Preservation of existing enterprise groups does not mean that individual ones with small volumes of 60-70 million rubles can not be transformed into industrial construction and assembly unions. In planning the overall schem for construction management of USSR Mintyazhstroy, we introduced a proposal to convert two enterprise groups in 1985--Zaporozhzhilstroy and Voroshilovgradtyazhstroy--into PSMO (industrial construction and assembly unions). We do not intend to approach the formation of PSMO in a mechanical fashion, to cut an enterprise gorup into two, three, or more parts, as is suggested by one of the discussion participants in Stroitel'naya Gazeta--Ye. Krotkov, sector manager of NIISP (Scientific Research Institute of the Construction Industry) of UkSSR Gosstroy.

Many discussion speakers (comrade Kazunin, head of Glavorenburgstroy and members of USSR Minstroy and Minpromstroy) propose placing under the authority of territorial central administrations those enterprise groups involved in planning homes, urban construction and the construction part of industrial buildings and structures. The proposal merits consideration.

Many experts who took part in the discussion of virtal problems of improving the sector system of management support the proposal to put specialized construction organizations involved in sanitation and technical, electrotechnical work in residential constrctuion, and organizaions assembling modular reinforced concrete and steel structures in industrial construction under the umbrella of construction ministries, their central boards and enterprise groups. This will also reduce interagency disputes and increase manageability at the construction site.

Here is a clear example. The enterprise group Donetskzhilstroy, which performs residential and urban construction in most of the Donetsk oblast, includes the specialized trust Santekhelektromontazh and the trust Stroymekhanizatsiya. They carry out, in addition to assembly of modular homes, finishing work, organization of public welfare and services and cut through intrablock alleyways. The average annual output in this enterprise group per worker last year was 11,152 rubles, while in the enterprise group Zaporozhzhilstroy, which performs work in one city and enjoys the services of specialized subonctractor trusts Zaporozhsantekhmontazh and Zaporozhelektromontazh, output at the same level of modular construction only reached 9,416 rubles, a good 18 percent lower.

It goes without saying, the output lag stems from many causes, but the main thing is the complexity of interagency relations.

Docent V. Krupenchenko (TsMIPKS at Moscow Engineering and Construction Institute imeni V. V. Kuybyshev, Moscow) is undoubtedly correct in suggesting methods to determine the linking based on management standards. Only certain details could raise objections: it is not worth determining management standards in calculating the number of workers. This evidently effective and simple indicator does not excite curiosity in raising labor productivity. After all, the more workers per planned job, the lower the output.

Generally speaking, this management code, which Stroitel'naya Gazeta accumulated in the course of the discussion, in my opinion honestly reflects the most vital, substantive problems of improving the structure of management.

At the present time, some supervisory agencies and departments, while carrying out checks and inspections, use relative share indicators (in percents) of the number of management personnel calculated on the number of all workers. They sometimes arrive at the wrong conclusions. This indicator, because of the different level of output, does not describe the true situation of providing organizations with management staff when comparins several ministries, central offices or enterprise groups. A more correct reflection of management worker availability is an indicator of their number of million rubles of planned construction and assembly work using estimated costs. The dynamics of the number of employees from year to year must also be determined per million rubles of planned construction and assembly work in terms of total volume.

We feel that the system-wide practice of annual cut-backs in managerial expenditures and their enumeration in the budget, which has turned into some sort of extra payment with no structural improvement, is wrong. In 1970 through 1973, idle construction organizations were strengthened or eliminated, while later on this campaign became a routine reduction of organizational workers in the trusts, administrations and sections, and this has led to a drop in management quality.

Let us take a closer look at this issue. UkSSR Mintyazhstroy contributes 100,000,000 to 120,000,000 rubles profit per annum to the budget from subcontracting activities alone. The payment target for reduced managerial expenditures in construction comes to 2,000,000 rubles. But these two millions greatly encumber our management activities. We could make this additional contribution to the budget, as a result of above-target profit, by reducing losses due to non-productive expenditures and other reserves.

It seems to us, and many discussion participants emphasized this, that the search for new management forms should be approached with caution, attentively, without fracturing and destroying useful industrial bonds. Even a simple matter such as shifting construction management from one trust to another sometimes involves a 20-40 percent loss of experienced personnel. Therefore, the mastery of result forecasting methods is an indispensable condition for all those who plan to establish new "transmission systems" in the management mechanism.

We call the attention of readers and experts engaged in elaboration of a general management plan in capital construction to the MANAGEMENT CODE composed in terms of our publications:

1. Strengthen the basic industrial link--construction and assembly trusts, home building and rural construction enterprise groups. To shift to "lock and key" methods of work when erecting housing and civil facilities, transfer specialized assembly organizations to subordination to these subdivisions. (G. Lubenets).

2. Determine economically advisable radius of activity of a subcontracting organization. In a given territory, all construction subdivisions generally should be subordinated to one agency--the territorial central administration (L. Blank).

3. The optimum number of administrative links should be fixed on the basis of management standards. In each specific instance, this can be done on the basis of existing experience, theoretical analysis and expert evaluations (V. Krupenchenko).

4. In several republic and Soviet constructions ministries, eliminate enterprise groups as a middle-man in management (Ye. Krotkov).

5. Let constructions organizations which are self-supporting plan their own composition and structure of management expenditures (M. Podnos).

6. Annual targets for reduced expenditures for management should be replaced with planned budgetary payments resulting from savings realized from measures provided in general construction management plans (Yu. Rakhmanov).

7. Planning of housing and the entire construction portion of industrial facilities should be transferred to construction ministries and their territorial subdiv-sions (G. Kazunin).

8. Provide qualified expertise and economic justification to the investment program in every oblast, kray and republic (Ye. Zabotin, N. Chepachenko).

9. Raise the prestige of the general supplier of equipment.
Let him handle the assembly and adjustment of special machinery, units and processing lines (A. Tolkachev).

8617
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CONSTRUCTION

PARTY'S ROLE IN SUPPORTING INDUSTRIAL CONSTRUCTION IN UKRAINE TOLD

Moscow STROITEL'NAYA GAZETA in Russian 11 Jun 82 p 2

[Article by Ye. Kunda, manager of the Construction and Municipal-Services Department of the Ukrainian Communist Party Central Committee: "The Staff Has Many Concerns"]

[Text] Party supervision over construction.

In accordance with 26th CPSU Congress decisions, new facilities for producing effective types of metal products should go into operation in the Ukraine during the 11th Five-Year Plan. The oxygen-converter method for smelting steel, powder metallurgy and progressive methods for mining and beneficiating ores will be further developed. The main growth in capacity will be obtained by rebuilding and reequipping existing enterprises.

Among the most important construction projects of the five-year plan is the oxygen-converter department at Dneprodzerzhinsk, the "3000" rolling mill at Zhdanov, a high-capacity coke battery at Zaporozh'ye and other facilities. These jobs are being erected at a rapid pace. Experience in the management of construction of large complexes based upon the cluster method, which was proposed by UkSSR Mintyazhstroy [Ministry of Construction of Heavy Industry Enterprises], is being used successfully here. It has stepped over the republic's boundaries and is being introduced in many of the country's construction projects.

More attention must be paid to engineering preparation for operations, the introduction of progressive operating technology, effective constructional structure, and the brigade contract, and the creation of housing and living conditions that are suitable for the workers. For the responsive solution of questions that arise locally, groups have been created from UkSSR Gossnab designers and workers. Construction and installing trusts have been called in to the indicated facilities from other oblasts, and now 5,000-7,000 people are working here simultaneously. In considering this, organization supervisors and party committees were concerned ahead of time about introducing housing and dormitories and the solution of many questions about eating and transporting workers.

Party staffs, headed as a rule by city party committee secretaries, are a reliable, proven form of political support for the construction of large facilities that are due for early startup.

For construction of the "3000" rolling mill at the Plant imeni Il'ich, the party staff is monitoring the deadlines for fulfilling operations, is helping to coordinate the actions of interdependent activities and is following up on the timely delivery of structure and equipment. At the staff's initiative, the plant has concluded an agreement about socialist competition under the Workers' Relay principle among the contractor, the design institutes and the equipment suppliers. Monthly tasks for brigades have also been developed, and special editions of the oblast newspaper, KOMSOMOLETS DONBASSA, and of the radio newspaper have been organized.

One of the most important areas of party-staff work is the wide distribution of innovators' experience. The collective of the brigade under Hero of Socialist Labor V. Abashkin from Azovstal'konstruktsiya [Azov Trust for the Installation of Steel Constructional Structure] committed itself to carry out half of the established five-year plan task by the 60th anniversary of the forming of the USSR. Jointly with the advanced brigade of installers under Hero of Socialist Labor F. Zhuravskiy and other collectives that were supporting this initiative, the main production facilities of the "3000" mill complex were erected in a short time.

The erectors and mechanics brigade of I. Ivan'ko, N. Klimov and N. Marey cut to one-third the time required for installing the boilers and coolers of the oxygen-converter department at Dneprodzerzhinsk in comparison with the pace achieved at similar construction projects. Major preparatory work on consolidating units into modules of up to 75 tons in the work zone helped here.

Party staffs have also taken it upon themselves to strictly monitor progress in the construction of housing, schools and children's and therapeutic facilities simultaneously with erection of the industrial facilities.

During the current five-year plan the scale of work on rebuilding and reequipping existing enterprises has grown considerably. Dnepropetrovsk Oblast builders have gained great experience. The task of the 10th Five-Year Plan for introducing into operation capacity for 58 million tons of iron and manganese ores, for smelting 3 million tons of steel and for producing more than 13 million tons of finished rolled metal was carried out here ahead of time.

Transferring trusts to work on reconstruction poses the question of supplying them with the necessary machinery and mechanisms and of manning them with highly skilled personnel. Experience indicates that under the complicated conditions of existing enterprises (especially where reconstruction goes on without cessation of the main production work), the labor intensiveness of construction and installing work grows sharply. Therefore it is necessary to speed up the solution of questions associated with growth in labor productivity, wages and economic incentives for construction organizations.

There are other questions, also. For example, in accordance with the plan to master new ore deposits during the current five-year plan, it is planned to start building the Belanovskiy and Krivoy Rog Mining and Concentrating Combines, and construction has already started at the Tavricheskoye combine. All of them are far from existing construction-trust bases. USSR Minchermet [Ministry of Ferrous Metallurgy] and the construction ministries must require in advance the creation in these regions of plants for ready-mix and prefabricated reinforced concrete, assembly blanks, articles for large-panel housing construction, and bases for making up complete sets of operating equipment.

Change in the operating structure of UkSSR Minmontazhspetsstroy [Ministry of Installation and Special Construction Work] is complicating the task of concentrating on time on construction projects that are due for early startup. Since 1976 the amount of overhaul carried out by these ministries rose 1.7-fold, and it is 46 percent of the total program, but the amount of subcontracting operations, upon which the turnover of new capacity depends, has been reduced by 18 percent. In order that this not be reflected in the introduction of industrial facilities, we are trying to plan repair work basically for the first half of the year, and we are also persuading the metallurgists to develop in-house repair organizations.

On the whole, success in the matter depends greatly during construction upon how the enterprises and client ministries carry out their commitments.

Under the plan for 1980 UkSSR Minchermet failed to issue 54 percent of the technical documentation on time, last year the figure was 26 percent, and this year it is 33 percent for the annual plan. Errors in determining the budget-estimated cost have resulted in the plan for construction and installing work having to be overfulfilled by 90 million rubles during the last 5 years in order to introduce capacity into operation, to the detriment of other construction projects.

More than 3,500 additional drawings that represent a work volume of more than 10 million rubles have already been issued for construction of the oxygen-converter department at the Azovstal' plant.

The arrival of the major portion of the appropriations during the last year of construction, contrary to the established norms, throws the builders off the pace. During the first year of construction, 2.5 million rubles was appropriated for coke battery No 1 of the Zaporozh'ye By-Products Coke Plant, while the norm was 6.8 million, and, during the year of startup, 17.8 million rubles' worth of work had to be carried out. This is not an isolated case.

It must be said, for the sake of correctness, that there are no few deficiencies also in the work of contracting trusts, particularly in the organization of work directly at the construction site. Reinforced-concrete and metal structure does not always arrive on time, much worktime is lost and machinery is used poorly. The republic's experience in high-speed construction indicates that the timely fulfillment of state tasks depends greatly upon the search for reserves, both major and minor, and of energetic work to realize them. This is the main thing right now, and construction-project party organizations are aiming at the fulfillment of these tasks.

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CONSTRUCTION

CONSTRUCTION MINISTER POINTS OUT SHORTCOMINGS OF CLIENT MINISTRIES

Moscow PRAVDA in Russian 23 Jun 82 p 2

[Article by B. Bakin, USSR Minister of Installation and Special Construction Work and Hero of Socialist Labor: "The Client and the Construction Project"]

[Text] The Style of Economic Management.

> The country's economic might is being strengthened each year by the introduction into operation of hundreds of new industrial enterprises, which are supplied with increasingly perfected equipment. Such industrial giants as KamAZ [Kama Motor-Vehicle Plant], Atommash, the steelmaking and rolling complexes at Cherepovets, Lipetsk and Zhdanov, the "millioneer" coking batteries at Altay, Kemerovo and Zaporozh'ye, and facilities of the agricultural industry complex--installations for producing ammonia with a productivity of 450,000 tons each in Togliatti, Odessa, Grodno, Perm and Berezniki, and many other facilities that were created during the 10th Five-Year Plan--all these are bright testimony to the enormous potential of our industry and the professional maturity of the builders and installers.

And yet capital construction still is not coping completely with the tasks set for it. The actual time for constructing capacity is by far greater than the standard and planned times.

A situation is being created that is paradoxical. Each year the whole army of construction and installing workers becomes increasingly skilled, and it is being supplied with modern technical equipment. Industrialized structure, the modular installation of equipment, and conveyor-line assembly for the roofs of buildings have been widely disseminated. Radical changes have occurred also in construction and installing-work technology. Many large jobs are now being erected by the progressive semicluster method and by integrated contracting brigades. But the volume of construction projects not completed on time is growing. Why? Experience is persuasive that the causes of this are found primarily in mistakes in the management style of the ministers of the client branches--the future proprietors of the new production capacity.

The client has multifaceted obligations. It is he who recommends to the planning organs that the facilities be erected, orders the technical documentation from the design organizations and then accepts it, makes contacts with the main outfitting administrations about the allocation and shipment of the equipment, and, finally, finances the construction. In other words, he holds in his hands the key positions for creating an industrial complex. This being the case he is obliged to proceed from realistic financing, labor, and supply and equipment potentials, especially in the case of developing parts of the country. Certain industrial ministries at times overlook these fundamental prerequisites. This practice sometimes finds support in the branch departments of USSR Gosplan.

A large facility is erected in 3, 4, or even 5 years, depending upon its size and complexity. In the year that it is to be started up its readiness should be 70-75 percent. If this is carried out correctly, the facility goes into operation within the established standard period. But for this purpose, in the backlog years, that is, the years that precede the startup year, the financing, supply, and equipment support must correspond in full measure with the technology and schedule for the operations. This principle is known widely, but clients and planning organs often violate it. In the initial period, they reduce the amount of financing and supplying and in the year of startup they sharply increase it, USSR Gosplan often establishing in such cases deadlines for introducing the facilities in a decision-making procedure that does not consider how much remains to be done in the concluding year. But wonders do not occur in the real world.

According to the plan, the erection of installations for producing sulfuric acid was to begin last year at the Meleuz Chemical Plant (Bashkiria), which is part of Minudobreniya [Ministry of Mineral Fertilizer Production]. The amount of construction and installing work was 25 million rubles. The deadline for introduction was 1983. During the first year, if guided by the standards, 7 million rubles' worth of work--28 percent of the total volume--had to be done. But the client did not allocate one kopeck. Today, instead of 19 million (taking last year into account), only 4 million have been appropriated.

This is far from an isolated case, where interruptions occur as if they were incorporated...in the plans. At Cherepovets erection has begun of the country's largest blast furnace, with a volume of 5,580 cubic meters. It is necessary to erect about 137,000 tons of metal structure here. The amount is enormous. The task is complicated still more by the fact that the operations have to be conducted at the crowded site of an operating plant. The constructional structure should have been installed basically the next year, otherwise the furnace would not start up in 1984. This was clear to everyone. Nevertheless, today we have been allocated the metal for only 45,000 tons of structure, but indeed you will not manufacture and erect the remaining tens of thousands of tons in one year.

Let us take another facet of that same topic--the delivery of equipment, for which the client bears responsibility. Manufacturing enterprises have been given the right to complete the delivery of their output to construction projects in the last 6 months prior to the planned deadline for turning the facility over for operation. The terms are tough, but if the amount to be delivered is not great and if the erection technology is not violated, our installers will cope with it. At the Kostomuksha GOK [Mining and Concentrating Combine] everything proceeded on the assumption that concentrate would be obtained in March and pellets in April. However, USSR Minchermet [Ministry of Ferrous Metallurgy] enterprises, for which the combine is being built, failed to send 400 units of equipment on time, other suppliers failed to furnish 380 kilometers of cable, 340 units of shutoff fixtures, and three motors for ball mills.

The installers had no basis for reproaching the machinebuilders for poor work. Their enthusiasm is well known. Obviously, excessive transshipments by clients affected the violation of deadlines for delivering the equipment. But then the requirements and potential for shipping equipment and materials must be balanced.

Strange as it may seem, there is today no organ responsible for this matter. The branch ministries partially fulfill their orders for equipment themselves, but the bulk of it comes through soyuzglavkomplekts [main administrations for making up complete sets of equipment, instruments, cable and other articles for especially important construction projects of the coal, oil and other branches of industry] of USSR Gossnab, which then distributes the orders among manufacturing enterprises. The system is rather orderly, but it is actually bereft of strict monitoring. It is not within the client's power to influence the Gossnab subunits--they are from a different agency. The soyuzglavkomplekts, having issued the orders, also consider that they have done their job and they do not have any influence on the dates for realizing the orders. And USSR Gosplan, which has planned everything, which is what it is supposed to do, no longer intervenes in the work of the ministries and enterprises.

But nevertheless the demand should come primarily from the client--the proprietor of the construction project. During the erection of VAZ [Volga Motor-Vehicle Plant] and KamAZ, special administrations were created which were part of the system of the boards of the enterprises that were under construction; they distributed orders for equipment, monitored their execution, and were engaged in making the equipment up into complete sets at the sites. The results were excellent. Why would one not think about disseminating this experience?

Most new facilities, complexes and capacity are now being built at existing enterprises. Their boards are engaged in basic production, while construction for them is an additional concern that is far from being the main one.

It would seem that the responsibility of those who have the capital investment at their disposal is reduced because of the discordance of plan indicators. The work of the contracting organizations is judged today by construction commodity output, that is, by the introduction of capacity and facilities into operation by the planned deadline. The rating of their activity and the amounts of the incentive funds depend upon meeting this indicator. Such a criterion has not been set for clients. Their material welfare is not at all connected with the results of the erection of the facilities they have ordered. It is clear that this is a major omission in economic management.

The principles of planning and economic incentives called for by the CPSU Central Committee and USSR Council of Ministers decree about improving the economic mechanism should not be departed from, and, since they have been taken into the tool chest, they should be carried further. This was discussed correctly in the economic review, "Plan i stroyka" [The Plan and the Construction Project] (PRAVDA, 8 February).

Meanwhile, violations of the planning procedures that were established by this decree continue. The installers receive the annual plan today with great delay. Again the plan calls for introducing about 70 percent of these facilities into operation during the fourth quarter. Does this mean crash work and interruptions again?

It is especially difficult for us--the installers--in this situation. Coming to the installing work with, as a rule, great delay--for reasons already discussed--and striving to make up for the time lost by our partners, we are forced to double or treble the number of workers over the norms. Last year about 150,000 additional people were sent in the fourth quarter to construction projects that were due for early startup. What's the use of talking here about precise observance of the technology for performing the work, its economic effectiveness, and organized contracting brigades.

Often we succeed in wringing out a facility, as they say. But at what price? For example, Soyuzmontazhlegmash [All-Union Trust for the Installation of Machinery for Light Industry], having organized crash work in the fourth quarter of last year at amost all its construction projects, turned them over, together with the general contractor, for operation. Apparently all is well. Honor and glory to such a collective. But because of overexpenditure of the wage fund and other low economic indicators caused by the crash work, it proved to the ministry to be among the laggards and it was deprived of a prize place for results in the socialist competition.

And so, back at the first stages of planning, we are creating difficulties, and then we start to overcome them doggedly. Party documents repeatedly have noted that we need strenuous but realistic, well-balanced plans. It would seem that new facilities must begin when everything, absolutely everything is ready for it: there is no doubt of any kind about the design quality, and there is complete clarity that the equipment will arrive on time and with completeness, and that the necessary time for preparing the site--the laying of roads, the creation of housing and a production base that will permit the builders and installers to introduce industrialized work methods widely--has been allocated.

How is this to be achieved? What kind of a barrier is to be set up against branch bureaucratism? Perhaps it is necessary to establish a special consultant review by USSR Gosstroy or USSR Gosplan which establishes the readiness of all organizations--the client, the general contractor, the subcontractors and the equipment suppliers--to build the industrial facilities with the time set by the norms? We still do not have the objective, integrated monitoring that will prevent inclusion in the plan of an unrealistic facility or an interruption of its construction. Perhaps it is necessary for this purpose to expand the functions of USSR Stroybank and its organs, to prohibit opening up financing of capital operations if their participants are not ready fully to observe the conditions that will guarantee rhythmic and timely erection of the facility?

But primarily, in my view, it is necessary that USSR Gosplan or USSR Stroybank establish strict monitoring over the distribution of resources assigned to branch ministries by year of construction for each facility in precise correspondence with existing norms. This will be a good measure which will counteract the dispersion of funds and resources over many construction projects, of which even today our clients continue actively to be guilty.

It can be asked: why are you always talking about the clients; indeed, do the building and installing organizations have few deficiencies and reserves for speeding up operations? Yes, there is much that the general contractors and subcontractors must do to fix their own activity, in order to build rapidly, economically and on a modern level. But this will be done more quickly if the planning and financing organs, as well as the client ministries, will resolve more energetically the task of restructuring planning methods and the style of economic management and economic thought that was set by Comrade L. I. Brezhnev at the November 1981 CPSU Central Committee Plenum.

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CONSTRUCTION

LEGALITIES OF CONSTRUCTION ORGANIZATION-CLIENT RELATIONSHIP

Moscow PRAVDA in Russian 19 Jul 82 p 2

[Article by G. Tsypkin, student of law, Moscow: "At each stage"]

[Text] As a student of law, I constantly have to search through the standards legislation for situations which correspond to questions such as the following: "When concluding a subcontracting agreement between builders and the customer, disagreements arose about the amount of work and the start-up time of the facility. The construction trust put together a protocol of disagreements and sent it to its ministry and the customer's ministry. The required fifteen days passed but there was no joint resolution of the aforementioned problems. What is to be done: to agree to unfounded suggestions of the customer or to keep waiting for the ministries' decisions?"

The subcontractor is the construction organization. By its very nature, it can not remain idle for a single day. The source of its economic well-being and even the very possibility of paying its workers wages is the finished facilities, start-up complexes, the foundation for which is laid by an important legal document, the subcontracting agreement. This is why the pre-contractual discussions are the very place where experts, running from the construction and assembly union to the ministry, can exhibit their true organizational and, as it were, fighting spirits so that state suffers no damage.

Who can lose and what can be lost in a conflict that gets into the newspapers? Builders, for sure, can lose prizes, because some of the work they have completed will not be reimbursed. Cooperating ministries lost some of their work that was started late. The state loses its long-awaited industrial capacity. But the co-workers of the corresponding divisions of the cooperating ministries, on whom an effective resolution of the conflict depends, lose nothing.

Let us now consider a situation with a specific address. Consider, if you will, the trust of BeSSR Minpromstroy in Brest which, according to plan, was supposed to provide the State Commission with a large furniture factory this year. Until recently, work at the construction site was bogged down. But during the start-up period, the general contractor found some large gaps in the factory plan which boosted the estimated cost.

Another 800 tons of pile had to be used, the metal for which you can't get from the centralized supplies this year. Furthermore, the client did not have enough cash to cover the completion period of construction. The managers of the trust turned to USSR Minlesbumprom and USSR Gosplan asking them to delay the start-up of the Brest furniture factory to the following year. As compensation they promised to reconstruct and put into operation similar capacities to produce padded furnitue at a factory in Minsk.

The customer won the judgment at the ministry, however: "The contractor is trying to give the run-around. If he wants to correct the plan, he should hurry up. Let him build!" The position of the division experts at Gosplan was a traditional one for those dealing in the affairs of the lumber and paper industry: "You can't indulge a general contractor. The plan is the law. You approved it, now build". There is a danger that neither the planned facility will be put into operation now, nor the capacities offered as a substitute by the builders.

The earlier questions begs to be repeated: "Who was the loser and what was lost in this conflict?"

In articles about the problems of improved management typical of our news media today you get a sense of the notion of increasing the responsibility of economic management agencies: planning agencies--for balancing the planned budget, financial agencies--for guaranteeing credit resources, ministries--for clear-cut organization of production. The situation can not and should not exist where a responsible expert at the level of a ministry or USSR Gosplan does not suspect the serious consequences which will result from his opinion about any industrial problem.

In the meanwhile, we only have responsibility of low-level services and individual workers to their superiors. The instructions come from on high, the reports come from below. What if we were to program the report about performace of service duties in the opposite direction, from top to bottom? Is that possible?

A major organizational campaign in capital constructions is the conclusion of a contracting agreement. In the current year it had to be fully concluded by 5 Jan. But since the experts of the ministries and customers and contractors could not clarify their relationships by that time, they were given an adjournment until 10 Apr.

On that date, however, agreements for contracting work through USSR Mintyazhstroy were concluded for 65 percent of the work volume, through USSR Minsel'stroy for 75 percent, through USSR Minpromstroy for 81 percent. The constructions organizations which were compelled to begin erecting facilities without an approved title, with "closed" financing, i.e., without the customer's cash, will probably never hear apologetic words from specific people at the superior echelon.

How can responsible individuals be made more responsible? Perhaps a law could be passed setting forth sanctions to be imposed against inoperative managers, violators of standard decision-making periods? A law like that would hardly work: it makes no sense, you will agree, for the subordinate organization to go to court and have to deal with its supervisory agency, a trust with the central board, and a central board with the ministry. Increasing personal responsibility of a managing agency worker for operativeness and quality of decisions is another matter.

I can predict the objections:this responsibility, they say, is sufficient. For example, there is a certification system which operates once every three to five years. There are also disciplinary measures: reproof, reprimand, dismissal. These, however, are all one-time measures. Disciplinary penalties can not be imposed later than a month after the job fault has been discovered.

There is yet another type of influence: material responsibility of a worker for damage caused to the enterprise. At the level of a trust and its administration, this system is clearly effective. But just try and prove that delays caused by technical specialists at the central board engaged in correcting blueprints are responsible for losses in the contracting organization. Once again the penalty procedure is complicated.

The retention procedure was made complex back in 1929 by the Central Executive Committee and the Sovnarkom. There were plenty of justifications for that at the time: the relatively low wages of workers and clerks had to be protected. But the times have changed and wages have increased considerably. Consequently, the professional and material responsibility of every member of society should increase concomitantly.

One may ask who will monitor the extent of service activity at the ministry and Gosplan level? Let is be the very same inspectorate in the ministry or Gosplan monitoring inspector operating today. This service seems quite respectable now, but only at first glance. The specialists visit ministry divisions from time to time, collect various statistics, report their findings to the managers of structural subdivisions and inform them of proposals from the central administrative board based on verification results.

Inspectorate services can use the large agency computers. They issue convenient printouts containing information about which departments are being monitored, how many important assignments are being checked and the period by which they must be completed. Upon the recommendation of the inspectorate, the ministry board receives reports about managers who have failed to handle their assignments.

This is all proper, but we feel it is not enough.

A hearing is a one-time affair that only offers a summarization of what happened, or what did not happen. What materials does the inspector general's office look over in between hearings? Mainly explanatory memoranda, brief reports enumerating the "objective" reasons for failure to perform assignments.

It would be nice if the inspector general's office could not merely study the facts, but also create and organize them. Lenin said it very succinctly: don't seek and find out any more than you can fix up.

What tools can be used. Perhaps we should make use of the experience gained by the leading work crews in using a coefficient of labor participation? And why not? A KTU (coefficient of labor participation) can not be used for all workers within the machinery of a central board or ministry regardless of job assignment, can it? Are there really no categories in management activity that can be evaluated in terms of quantity and quality?

I am not insisting on categorically affirmative responses to these complex questions. But I do want to set a precedent.

In the labor organization of the management machinery of the Azot union of Kemerovo, they have had KTU in effect for the past five years Workers of the legal department can have their bonuses decreased for filing groundless suits; workers in the capital construction division --for registering financing too late. A special in management service, in protecting his right to reward, may file a grievance against a specific culprit in his agency. A system of mutual exigency and responsibility for quality leadership develops.

Such a system of evaluations in capital construction can substantially elevate the activity of supervisors of estimate and contracting and planning and economic administrations of ministries responsible for contract negotiations; and hurry up those Gosplan workers who are lagging in finishing up the instructional plans. But since management workers at these high levels do not receive awards, wages can be differentiated: two-thirds guaranteed salary and one-third, including staff bonuses, on the basis of KTU.

The idea of wage differentiation, of course, is not a sacred revelation. I just want to recall the extremely idea of Lenin to enlist the clerks of all narkomats, everyone who is associated with the economy, in the system of deduction from turnover and profit, with mandatory punishment for unprofitableness, and yawning at meetings and discussions.

Wages must be earned. This principle must not violated by anyone, never, and at no "echelon" of administrative management.

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INTENSIFICATION OF CONSTRUCTION DISCUSSED

Vilnius SOVETSKAYA LITVA in Russian 29 May 82 p2

[Article: "Intensification of construction discussed"]

[Text] A comprehensive program has been developed in the republic during the past year to intensify construction in the years 1981 through 1985. The program foresees the more efficient utilization of internal resources to accelerate work and improve its quality. The way things are coming along was discussed at a meeting held at the Central Committee of the Lithuanian Communist Party. Responsible workers of the Lithuanian SSR Council of Ministers, supervisors of Gosplan and the Committee for Construction Affairs, the association of interkolkhoz construction organizations, managers and secretaries of party organizations of trusts and home building aggregates participated in the convention.

A. Dauksha, head of the department of construction and urban management of the Lithuan Communist Party Central Committee spoke at the meeting.

It was noted at the convention that since the start of this five-year plan, there has been an increase in labor productivity at construction sites. This was promoted by the use of more efficient planning decisions, improved construction design materials, an increased level of mechanized labor, wider use of small mechanized hardware. Due to improved working conditions, living conditions and recreation at many construction sites, there was been a drop in personnel turnover. Brigade type work has had a tremendous effect: last year this method was used to perform more than 60 percent of all work. In our republic the level of modularity of construction is also high: the Ministry of Construction, for example, manufactures three-fourths of the parts at enterprises, when then only have to be assembled at the facilities in question.

Meeting participants drew attention to the hitches encountered in accomplishing the planned intensification of construction. In the first year of the five-year plan, a large number of organizations did not fulfill the construction and assembly targets, and there were deficiencies in work organization. Due attention was not given everywhere to the acceleration of technical progress, saving of raw material and supplies, reinforcement of labor discipline. The builders should receive a great deal of assistance from scientists and producers of building materials.

The meeting made note of measures to further intensify construction.

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CONSTRUCTION MACHINERY

PRODUCTION OVERSIGHTS HAMPER USE OF LASERS IN CONSTRUCTION

Moscow STROITEL'NAYA GAZETA in Russian 2 Jun 82 p 3

[Article by Ye. Brezitskiy (Moscow): "Lasers in the Field"]

[Text] The large-scale introduction of laser systems for the automatic control of earthmoving machinery began during this five-year plan in USSR Minvodkhoz [Ministry of Land Reclamation and Water Resources] organizations. Specialists of various branches of the national economy are concerned with them under the coordination plan of three ministries: USSR Minvodkhoz, Minelektronprom [Ministry of Electronics Industry] and Minstroydormash [Ministry of Construction, Road and Municipal Machine Building]. Minpribor [Ministry of Instrument Making, Automation Equipment and Control Systems] is taking an active part in creating equipment for automating earthmoving machinery.

The design developers have proposed a series of laser systems. Each later model is a step forward.

The SKP-1 (Kalina) system provides continuous monitoring of the quality of the leveling of rice plots. An indicator tells the equipment operator at each moment how many centimeters the scraper's blade is above or below the designed plane surface. No grading is required. A group of machines equipped with photodetectors can operate over an area of up to 50 hectares from one SKP-1 transmitter. For the SAUL-1 (Kapers) systems, which automatically guide the scraper's operating implement, the scraper DZ-77-1 with the "Kopir-Stabiloplan" apparatus has been released for series production. The equipment operator practically has to just keep an eye on the machine's path.

Lasers have become irreplaceable tools for leveling ground and for laying covered drain pipe. The equipment operators' labor productivity is increased to 20 percent, and expenditures on geodesic support for construction is reduced by 80 percent. The higher precision of leveling, according to VNIIRis [All-Union Scientific Research Institute for Rice Growing] observational data, increases crop yields by 8-10 quintals or more per hectare, and, what is of no little importance here, as much as 30-40 percent of the irrigation water is saved.

The benefit from using lasers in land reclamation in the last year of the current five-year plan should exceed 10 million rubles, not counting the resulting harvest increment.

Problems in using laser equipment are being solved by computer when engineering surveys, particularly topographic surveys of localities and water bodies, are automated. The time has come to use the laser for controlling wide-coverage sprinklers.

Experience gained in working with the new equipment in various parts of the country deserves special attention. Making the advanced workers' achievements the property of all workers of a given specialty will help schools of advanced experience. The skills of laser-device and drain-laying operators are being raised in such schools, which have been opened in Krasnodar and Ryazan. Not only specialists are practicing here but also workers who have won contests in vocational skills.

And so everything is taking shape well. Laser equipment and automated earthmoving machinery are in series production, and plans for delivering new equipment and the amounts of surface to be introduced have been sent to the builders. Scraper and drain-laying machine operators who have mastered the new equipment do not want to work the old way. And suddenly, while it is being mastered on a large scale, fine-tuned cooperation has turned into troubles. Why?

Minstroydormash stopped monitoring the series production of automated scrapers, and, as a result, 170 DZ-77-1 machines were not received by the land reclaimers last year. Large numbers of laser instruments have been left in warehouses. When preparations for series production of the SAUL-1 laser systems were being made, Minelekrotekhprom failed to organize the output of a special motor for them. The quality of the instruments manufactured at Minelektronprom enterprises leaves something to be desired. In particular, in March of this year the interagency commission rejected 88 percent of the UKL-1 (Askanit) laser instruments that had been delivered to Lithuanian SSR Minvodkhoz.

And, finally, there remains the problem of organizing the repair and technical servicing of laser equipment and automated earthmoving machinery. Minvodkhoz has been compelled to take upon itself even the guaranteed servicing of the equipment. Although the manning documents of construction trusts and administrations and mobile mechanized columns do not include the required specialists, six repair shops have been established and are operating.

When 20-25 sets of Kalina laser systems were being produced annually, that was enough. But in 1982 more than 500 complexes are to be started up and set up, from 5 product lines. And the geography of introduction is constantly being enlarged.

It is apparent that if the yield of this equipment arsenal is to be greater, specialized subunits for performing startup and setting-up operations should be created for tuning the instruments. However, the appropriate services and training of operator personnel still have not been organized in all regional main administrations and republic ministries.

The large-scale assimilation of laser equipment requires a completely new approach. At this stage, cooperation should not be limited to just the stages of development and shipment of products in serial production. It should be continued to its logical conclusion, that is, to full assimilation at construction jobs. It would be desirable to establish the responsibility not only of land-reclamation specialists but also of those who are developing the new equipment for the results of introducing it.

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CONSTRUCTION MACHINERY

DOMESTIC HYDRAULIC HAMMER SAID TO BE BETTER THAN FOREIGN MODEL

Moscow STROITEL'NAYA GAZETA in Russian 30 Jun 82 p 3

[Article by I. Andreyev: "What the Hydraulic Hammer Can Do"]

[Text] "Hydraulics have given the excavator not only mobility, lightness of weight and high productivity. It has enabled it to acquire as many specialties as the types of tools that designers have been able to 'tie' to the machines' hydraulic drives. Today they have done so with 20 tools. Twenty different replaceable items of equipment, and the latest of them are hydraulic hammers for breaking up frozen ground, destroying asphalt concrete and performing other similar work.

"In general, it can be considered that excavators have stepped into the next epoch of their development. And we can see right now how successful they are," concluded General Director of the NPO [Science and Production Association] VNIIStroydormash [All-Union Scientific-Research Institute for Construction and Road Machine Manufacture] Eduard Nikolayevich Kuzin in this little report.

We had ridden to the Moscow Building-Materials Combine, where the latest check on the potential of the new hydraulic hammers was to take place. Had the site not been located on Volokolam Shosse, within the city limits, it would not have been especially difficult to imagine that somewhere nearby a mountain landslide had occurred. Tens of multiton boulders and blocks towered at the site of the tests in picturesque disorder.

"Hydraulic hammers," says VNIIStroydormash section chief L. Yerofeyev, "have already showed themselves off pretty well for breaking up frozen ground. Today they are to do some work that is somewhat unusual--the destruction of outsized rock--granite and marble. The test is extraordinarily important. The fact is that our hydraulic tool uses the working fluid of the excavator itself as an energy carrier. While foreign models still use a gas--nitrogen--as an energy carrier. Special accumulators with pressures of up to 160 atmospheres are used for this.

"It would seem that our method will simplify design and make it more convenient for operation. And today's comparison tests will show to what extent it is more efficient than foreign machines."

...They were standing side by side--a wheeled excavator from the Kaliningrad plant and a tracked one from the Kovrov plant, with domestic hydraulic hammers, and their competitor--a machine with hydraulic hammer from one of the foreign firms that leads in the world market. It was a firm that had recommended its product, which, incidentally, had proved itself superbly to our construction organizations. This is what they were compared with.

And the combine's operating procedure unexpectedly enabled still another possibility for comparison: at this same site, a brigade of masons was breaking up blocks of granite for crushing. Holes were being drilled through the rock by a pneumatic perforator, and then steel wedges were driven into the holes by a hammer, blow by blow. In general, it is manual work in all its starkness.

The Kalinin excavator went up to the block of granite, which was about $2 m^3$....For the specialists, certainly, the most important thing was that in a minute a heap of small fragments was left for the crushing machine from the block. The author of these lines was surprised at something else: how precisely and quickly the hydraulic hammer's wedge had adjusted this huge stone thing so that striking it would be more convenient. It did this easily and with the precision with which a human hand adjusts a walnut in order to split it more successfully.

And then the excavator, which was supplied with a hydraulic hammer with an impact energy of 300 kg-cm, attacked the next block. It somehow was reminiscent of an enormous bird, especially when, squatting on its rear wheels, it leaned its beak--the hammer wedge, which crowns the boom--on the block of granite. Another moment and there is another pile of fragments.

The commission that was conducting the tests kept firmly silent. But, on the other hand, uninvited spectators--young lads from the masons' brigade--were unstinting with their remarks. At first, before the first boulder was broken, the remarks were of an ironic nature: was it worthwhile, they said, to lug such a machine around for one pebble....Afterwards, they were of a businesslike nature: can't the wedge's shape be changed--the smashing would go on with greater precision. And when the Kovrov excavator went up to the granite boulder with a volume of about $6 m^3$, which could be destroyed only by blasting, even these spectators fell silent. The heavy hydraulic hammer has an impact energy that reaches 900 kg-cm. Today it is the most powerful one produced in our country or abroad. Proofs of this were presented in the few moments that were required to turn the boulder into a heap of small fragments.

The "foreigner" kept pace with our machines. Until the matter concerned outsized rocks of average hardness. On especially hard outsized rocks and a block of granite--its hydraulic hammer did not leave even a crack in the rock. Someone on the commission remarked: "It is clear that the frequency of blows is greater than ours, but the energy per blow is less."

The tests were completed, and I asked the opinion of V. Vasilen', Chief Engineer of Mosstroymekhanizatsiya-1 [Moscow Trust No 1 for the Mechanization of Construction Work] of Glavmosstroy [Main Administration for Housing and Nonindustrial Construction in Moscow City].

"We are satisfied that the builders have begun to receive such mechanisms. The hydraulic hammers enable concrete and frozen soil to be broken up without the use of poorly productive pickhammers. It should be said that the builders especially like the lightweight S01-183 lightweight hydraulic hammer for the EO-2621 excavator, the one produced most widely. It surpasses all hammers of that class known to us, but, unfortunately, we have only one copy of it--it still is not being produced in series. There is still another series of complaints--few of these machines are being produced, they are not of high quality, and the diversity of the designs creates serious difficulties in their operation. But, judging by the tests, the time for unifying hydraulic hammers has now arrived."

"Actually, our task," said association general director E. Kuzin, "is to create not uncoordinated designs but to develop series production of unified hydraulic hammers that will cover all the hydraulic excavators being produced by industry. For only on the basis of a unified series is it possible to organize specialized production, which will guarantee high quality and reliability of the machines. What you saw today is the start of this unified series, if I may say so. Three types of hydraulic hammers that VNIIStroydormash developed jointly with the Kovrov, Kalinin and Kiev excavator plants of the Krasnyy Ekskavator PO [Production Association] have passed very difficult checks under production conditions. And even today, as you see, they do not let one down."

The hydraulic hammers have been created. Now they must be produced in series. For they are needed for both kolkhoz fields and the construction of canals--everywhere that rocks must be destroyed, frozen ground ripped up, and reinforced concrete broken up rapidly, economically and safely.

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BRIEFS

NEW SHOTHOLE DRILL BIT--The Bamtransvzryvprom [not further identified] Trust, which drills shotholes in seasonally frozen and permafrost soils with rocky inclusions, is using a new bit that was developed by the UkSSR Academy of Sciences' Institute for Superhard Materials. It consists of a body with a tool-joint thread and six RB1-23 type cutters. Inside the body is a cavity that terminates in blowoff holes. The simple technology for manufacturing the bits enables production of them in the workshops of units working on the line. [Text] [Moscow STROITEL'NAYA GAZETA in Russian 11 Jun 82 p 3] 11409

NEW DRAINAGE-DITCH DIGGER--The MRK-1 machine is intended for cutting roadside and water-diversion ditches. It is a continuous-action earthmoving and cutting piece of equipment, with a system for the automatic control of working-implement depth that is mounted on the base of the D-532 tractor and is easily removed from the machine. The machine is supplied with a set of Profil'-20 equipment and a contouring attachment for automatic depth control. The economic benefit from introducing one MRK-1 unit is about 15,000 rubles per year. Detailed information can be obtained at 119048, Moscow, Ulitsa Usacheva, 62, PKB [Design-Development Bureau] of Glavstroymekhanizatsiya [Main Administration for the Mechanization of Construction Work]. [Text] [Moscow STROITEL'NAYA GAZETA in Russian 11 Jun 82 p 3] 11409

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